Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME 5.] NEW YORK OCTOBER 27, 1849. [NUMBER 6.

THE
Scientific American,
THE
BEST MECHANICAL PAPER IN THE WORLD.
CIRCULATION 12,000.
PUBLISHED WEEKLY.
At 128 Fulton Street, New York, (Sun Building,) and 13 Court Street, Boston, Mass.
BY MUNN & COMPANY.
The Principal Office being at New York.
Barlow & Payne, Agents, 89 Chancery Lane, London

TERMS--$2 a year--$1 in advance, and the remainder in 6 months.

Rail Road News.

Railroad to the Pacific.

A large and enthusiastic meeting was held in New Orleans on the evening of the 5th inst. for the purpose of taking into consideration the project of uniting the Atlantic and Pacific Oceans, by means of a railroad. One of the speakers said, "It is 1400 miles nearer to San Francisco from New York via Tehuantepec, than by Panama; and for Louisiana and the other gulf and river States, it is 1,825 miles shorter to go to San Francisco by Tehuantepec than by Panama."

The meeting expressed itself in favor of the Tehuantepec route, and passed a series of resolutions embodying its sentiments. The delegates from the State to the Memphis Convention were to be instructed to bring the route under the Convention's consideration. The following resolution passed by the meeting is in the right spirit.

Resolved, That we are in favor of the construction of a Railroad to the Pacific entirely within the territories of the United States, if, upon examination and survey such road shall be ascertained to be practicable; and that we will heartily aid, so far as our efforts may avail, in the support and prosecution of such an undertaking, whatever may be the route which shall be finally determined upon.

New Light for Railroads.

Proff. Grant is at present engaged in arranging his "Calcium Light," for the use of the Camden and Amboy and New Jersey Railroads, to be placed upon the front of the locomotives. Should this prove successful, says the Philadelphia Ledger, and of the utility Professor Grant supposes, it will render travelling by railroad as safe by night as by day. This light is a discovery by Proff. Grant, and is said to combine the several qualities of both the Electric and the Drummond light, and can be furnished at a comparatively much cheaper rate than the ordinary lights.

Great Tunnell.

The Huddersfield and Manchester Railroad Tunnel, in England, is more than three miles in length, being the largest in the world, at a depth of 625 feet below the ridge of the hill, which it pierces. The tunnel is so perfectly straight that on a clear day one can see through from either end.

Panama Isthmus Railroad.

The contract for grading about half the contemplated railroad across the Isthmus of Panama had been taken by a Philadelphia house.

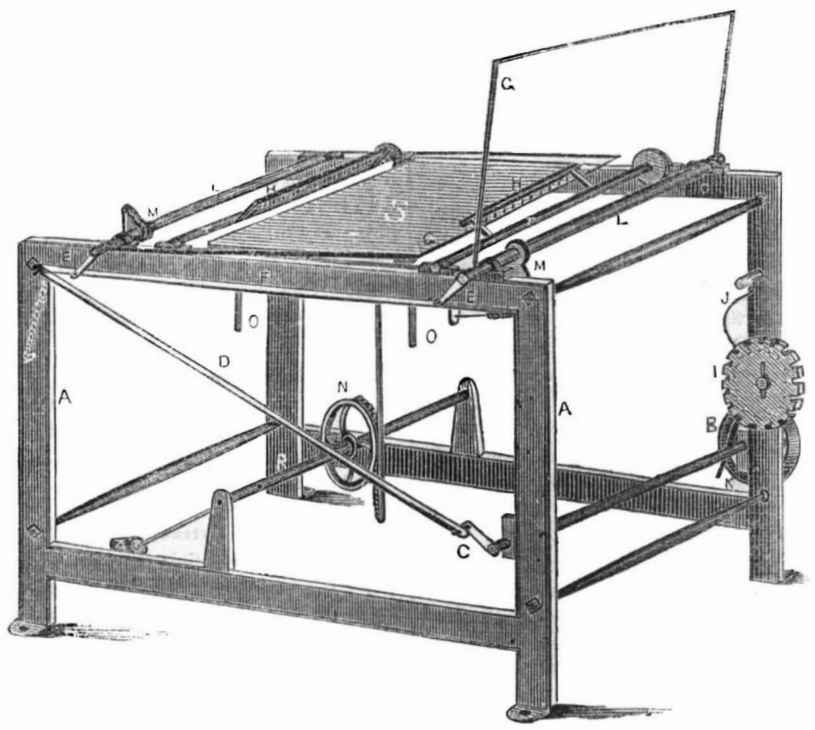
Wheeling Suspension Bridge.

The Suspension Bridge at Wheeling is completed and passengers are now crossing. Mr. Ellett the enginer first crossed in a horse and buggy.

The Blue Ridge Tunnel.

The Louisa Railroad Company has awarded the execution of the Blue Ridge Tunnel to Mr. Rutten, of New York, an experienced and energetic contracter.

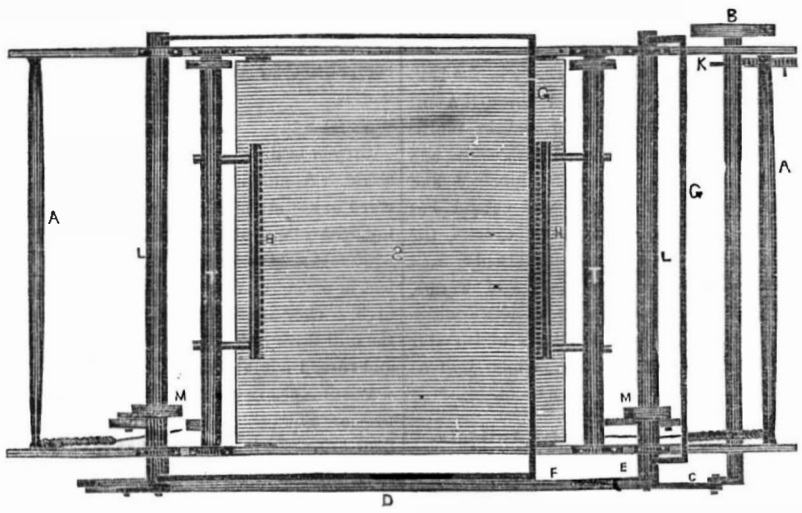
NEW CLOTH-FOLDING MACHINE.---Fig. 1.



This machine is the invention of Messrs. Carey & Bagley, of Amesbury, Mass., who have taken measures to secure a patent.

Figure 1 is a perspective view, and fig. 2 is a plan view—looking down upon the machine. The same letters refer to like parts. The object of the machine is to fold the cloth upon a table, by friskets lapping down on the table from side to side, alternately. The motions are governed by cams, but the main shaft has a rotary motion, and can be driven by a belt from the shaft of the prime mover. A is the frame of the machine; B is a pulley on the main driving shaft, to give motion to the whole machine. The reader must suppose the cloth to be taken from another table and carried above the middle of the table or folding-board, S; and G G the friskets that lap it down, alternately, from side to side, on the table. On the shaft of the pulley, B, is a crank, C, attached to the connecting rod, D, which is attached at the upper end of the machine to a longitudinal bar, F, which is attached by cranks, E E, to the axis, L L, of the friskets, G G. It will therefore be observed, that when the crank, C, revolves, the bar, F, will have a reciprocating motion, and the axis, L L, will have a rocking motion, giving the friskets, G G, a vibrating motion from side to side, alternately, to lap or fold the cloth down on the table. One of the friskets, in fig. 1, is represented as being down, and the other standing up. When the one frisket is rising the other is falling, and they pass at the vertex of the angle which they form. The friskets alone could not fold the cloth, as every lap must be retained in its proper place when laid down. This is done by two rocking stenter bars, H H, which hold down the cloth snugly at each side, and only rise to let the ends of the friskets

Figure 2.



pass under them to fold the cloth, and immediately fall when the friskets rise. These stenter bars are just cross bars, with some pin teeth in them, and are fixed upon two short arms each, which are secured on rocking axis, T T. The rocking axis of these stenters for retaining and holding down the cloth, are moved at the right moment by cams, M M, on the axis, L L, of the friskets. These cams strike projections on the under side of T T, and thus make the stenter bars rise, opening like jaws, which immediately fall when the frirksts rise, by the two coiled springs attached to the projections below, and to the cross bars, A A, as seen in fig. 2.

The table, S, rises and sinks like a balance table of weighing machines. It has four round guide bars, O O, (two not seen) which pass through openings in plates inside, and it has a pillar attached to its centre and passing down, is attached by a chain to the periphery of the balance pulley, N, which is secured on a shaft, R, having a weight, Z, attached to an arm on one side of it. Therefore when there is no cloth upon the table it is high up, allowing the stenters to hold the cloth firmly at one fold, and as the weight of the cloth increases on the table, it gradually sinks, overcoming the gravity of the weight, Z, allowing the cloth to be folded under the stenter bars on the table.

At the right hand there is a register wheel, I. It tells the number of yards folded on the table. It is moved one tooth every half revolution of the pulley shaft, B, or every fold of the friskets. This is done by a ratchet cam, K, extending through the said shaft, which takes into the teeth of the wheel, moving it one tooth round every time it catches, the ratchet, J, holding the wheel from turning back in the other direction.

We have thus described this machine in such a way that its motions will be easily understood, and its merits appreciated. More information may be obtained of the inventors, by letter (*p. p.*)

Useful Receipts.

How to Preserve Grapes.

The following article from the Newark (N. J.) Sentinel will be very important and useful to many of our readers.

For several years past I have succeeded in preserving Isabella grapes till March. We have had the luxury of having fresh grapes all through the winter; and have found them very useful and refreshing to the sick, especially to consumtive people. We pick our grapes to preserve for the winter as late as we can, and save them from frost; gathering them when they are perfectly dry, say in the middle of a sunny day. We take a dry box,—a common candle box is very convenient for the purpose, first cover the bottom with common cotton batting. We then put down a layer of grapes, one cluster after another as thick as they can well lay. Care should be taken that there are no broken nor green ones in the clusters.—If there are, they will cause the others to mould and decay. We then put down a layer of cotton batting, and then another layer of grapes, till the box is full.

Some have been at the trouble to seal the end of each stem with wax. We do not believe it is of any service. As the stems are brittle it is necessary to handle them with a great deal of care. When they are thus laid down, much depends upon the place where you deposit the box. It should be placed in the driest aud coolest place you have in the house. Some prefer the garret. There they are apt to wilt and loose all their flavor. Sometimes they will mould in the cellar. The princapal difficulty in preserving grapes lies in the keeping them secure from the time you lay them down and the setting in of cold weather. After that there is no difficulty; I have generally had them come out as green and as fresh in the middle of winter as they were when first laid down, and with all their original flavor.

So far as my experience goes I have succeeded best in preserving them in the upper part of the cellar. I have never failed in preserving them in this way. As they may be kept, they become a more desirable fruit, and the cultivation of the vine should be greatly increased not for the purpose of making intoxicating drink, but as an article of wholesome food.—There can be no doubt but that fruit should constitute a much larger share of our diet. The free use of it would relieve us in a geat measure of some of our most common diseases.

How to Keep Smoked Hams.

The best method of keeping hams is, after they are smoked, to put them back into the pickle, and the smoky taste is preserved as perfectly as when put in ashes or kept in a dry place.

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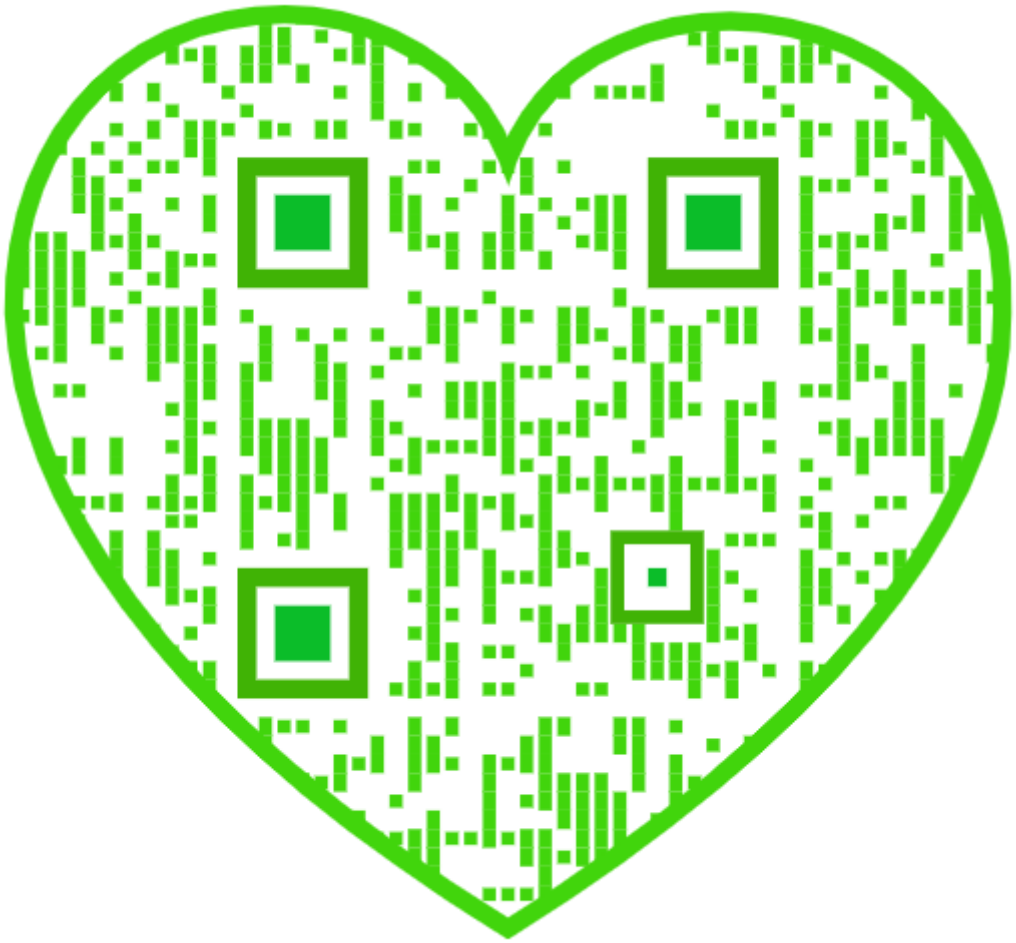

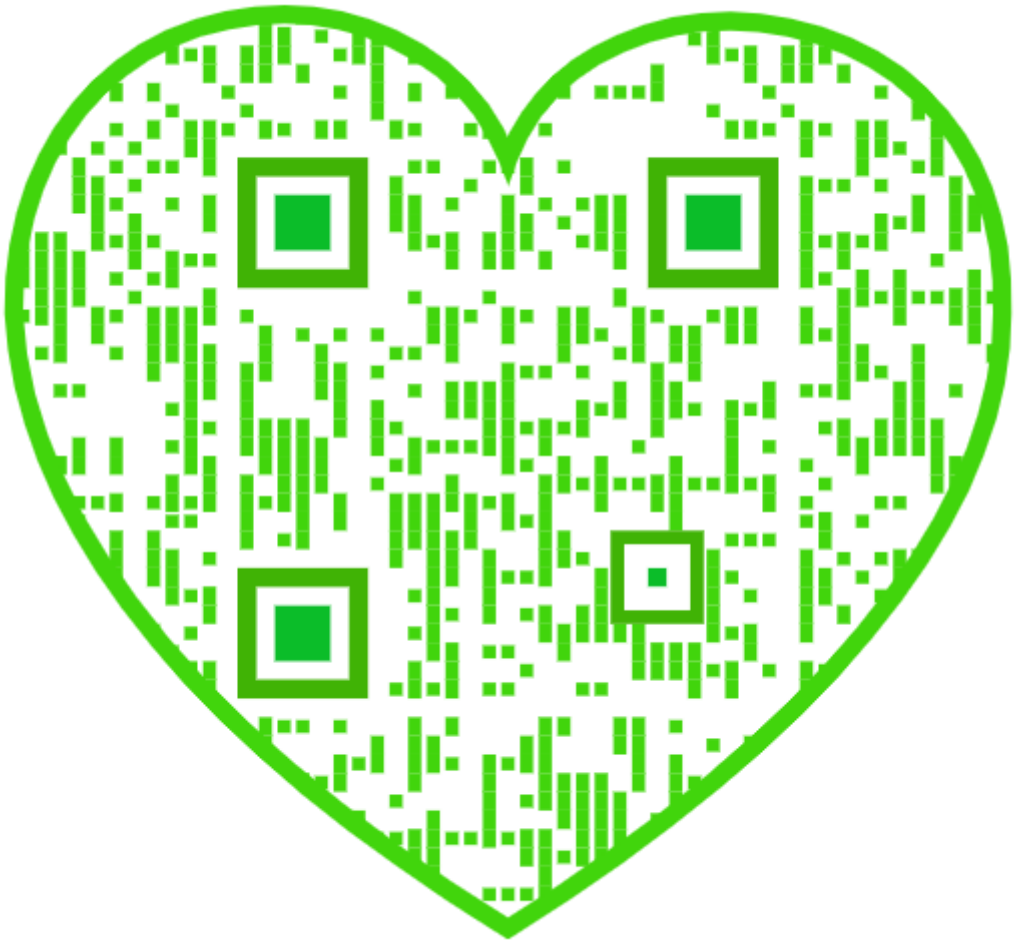

Miscellaneous.

A Whale in Vermont.

The workmen on the Burlington and Rutland Railroad, while digging a few days since near Beamen's Hollow, between Vergennes and Middlebury, came across the skeleton of some unknown animal, deeply imbedded in clay. Little attention was paid to the matter at the time, and unfortunately most of the bones were carted off. Enough of them, however, have since been collected by the Rev. Mr. Thompson, of this town, (the learned author of the History of Vermont,) to enable him to determine all the important characteristics of the monster to which they belonged, and to give a drawing representing its proportions. He states that the bones discovered are those of a certaceous animal, (or sea animal of the whale family,) resembling the dolphin. Mr. Thompson further states, that no fish of this particular kind is known to exist, and that the one here must have lived and died in the salt ocean, long previous to the creation of man.—In size, it was about 11 feet in length, and 6 feet in circumference.—[Burling. Sent.], and—

[The editor of the Green Mouutain Freeman, is coming into the faith. He does not object to whales being once inhabitants of Vermont.

Another Lost Child Recovered.

The reader will remember, says the Albany Evening Journal, that we have spoken of a little girl in possession of the family from whom Mr. Burt of this city recovered his boy. That child is claimed by Henry Baumer, of Hoboken. In June, 1846, the child was in company with her mother, on some public occasion, when they became separated. Although the child was missed in a moment, nothing could be heard of her. Her father had searched the Union through, without success, until, seeing our account of the recovery of Mr. Burt's child, he went to Oswego, and recognised in this reputed "twin-sister" of the boy his own child. When he first saw her, he spoke to her in German, and she replied in German, although she had been three years from home. Mr. B. is now in this city waiting the return of the Governor, to obtain a requisition for the arrest of the women at Oswego.

Prices of Telegraphing in England.

The London Times of Sept. 25 contains a statement of the places in England and Scotland at which the Electric Telegraph Company have stations—they are some 50 or 60 in number; also, the rates of telegraphing, which are, for every 20 words, 2 cents per mile for the first 50; 1 cent for the next 50, and for any distance beyond 100 miles, half a cent per mile. These enormous charges are the result of a close monopoly, which America is happily free from by the competition of various inventors.

[The above is going the rounds, and it is something we cannot understand, as there are as many different telegraph companies in England as there are here.

Tricks of a Flying Machine Man.

A certain gentleman named R. O. Davidson, celebrated a few years ago for some attempts in New Orleans at machine flying, has been trying the generosity of Lady Franklin to advance him some tin to prosecute some scheme of constructing a machine to go in search of Sir John, by flying instead of sailing. We are heartily ashamed of the fact that the high flyer is an American citizen, however let us call the attention of Mr. Robjohn to this object. The discovery of Sir John Franklin by a balloon would certainly be something to immortalize the daring aeranout.

The Puritans a Prolific Race.

According to Bancroft, the first Puritan settlers of New England are the parents of one-third of the population of the United States. In the first fifteen years—the time when most of the immigration from England took place—there came over 21,000 persons. Their descendants in 1840 were estimated at 4,000,000. Each family has multiplied on the average to a thousand souls. So that a little one has become a thousand, and a small one a strong nation.

New Discovery of Wonderful Ruins in Nicaragua.

At a meeting of the Ethnological Society, held in this city last week, it was stated that Mr. E. G. Squier, our Charge of Affairs to the Nicaragua Government, had commenced exploring, and forwarded several curious relics to Washington. He gives an account of the recent discovery of an ancient city, buried beneath the forest, about a hundred and fifty miles from Leon, which far surpasses the architectural wonders of Palenque. The Indians everywhere receive Mr. S. with the utmost kindness, and their chiefs regard him as a heaven-sent minister to protect them from their Spanish oppressors. They are glad to render him every possible assistance in his investigations, on the condition that he will bring no Spaniard into their villages, nor communicate to the priests the secrets they disclose.

A Peruvian Inca.

At the last meeting of the Ethnological Society of this City, Mr. Bartlett read a letter addressed to the President of the United States from the Inca of Peru, accompanied by a letter from Samuel G. Arnold, of Providence. Mr. Arnold, who has recently returned from South America, met with the venerable Inca, who is 90 years of age. He gives a very graphic account of his appearance, and relates the affecting story of the wrongs of his royal race. He found the princely old priest sitting in the shadow of the Temple of the Sun, engaged in reading Tasso.

Queen Victoria's Piano.

The splendid piano of her majesty, Queen Victoria, is completely veneered with ivory, in sheets of from fourteen to seventeen feet in length, and thirty inches and upwards in width, from a single elephant's tooth! by a spiral process peculiar to M. Pape. It is also encrusted and ornamented with the rarest woods, forming original designs, and rendering it worthy of its place in the new palace of her majesty.

Hoe's Printing Presses.

Mr. Kendall, in his last letter to the New Orleans Picayune, gives the following account of the success of Mr. Hoe in establishing the reputation of his power-presses in Paris. Success to American enterprise and genius:

"Colonel Hoe, the celebrated manufacturer of power printing presses in New York, I saw in Paris a few days since, but I learn that he shortly returns to the United States. He has succeeded in fully establishing his fame on this side; for while one of his machines is already successfully in use on the Patrie, others have been ordered on this side. He goes back with some new ideas in his head of still further improvements in his presses—already the fastest in the world—which will even increase the tremendous rate of speed he has so far attained. Success to him, for he fully deserves it."

Light from the Oyster.

Open an oyster, retain the liquor in the lower or deep shell, and, if viewed through a microscope, it will be found to contain multitudes of small oysters, covered with shells, and swimming nimbly about—one hundred and twenty of which, in a row, would extend but one inch. Besides these young oysters, the liquor contains a variety of animalculæ, and myriads of three distinct species of worms, which shine in the dark like glow-worms.—Sometimes their light resembles a bluish star about the centre of the shell, which will be beautifully luminous in a dark room.

Manchaneel Poison and its Antidote.

There is a tree called the Manchaneel, in the West Indies; its appearance is very attractive, and the wood of it peculiarly beautiful; it bears a kind of apple resembling the golden pippin. This fruit looks very tempting and smells very fragrant, but to eat of it is an instant death, and its sap or juice is so poisonous that if a few drops of it fall on the skin it raises blisters and occasions great pain.—The Indians dip their arrows in this juice to poison their enemies when they wound them. Providence has so appointed it, that one of these trees is never found, but near it grows a white wood, or a fig tree, the juice or either of which if applied in time, is a remedy for the the diseases produced by the Manchaneel.

Great Railroad Tunnel.

The Tunnel at New Hamburg, N. Y., is 830 feet long, and through solid rock. At the South end is a cut 500 feet long, 30 feet wide, and 50 feet deep, all through the rock before reaching the tunnel; through two shafts sunk to it, one 70 feet in depth, the other 56, a glimpse of daylight may be obtained. Emerging at the north end one other deep cut is found, nearly as formidable as that at the south, being 200 feet long and 70 deep making the entire deep cutting through the rock, all inclusive, no less than 1530 feet.

To carry on this work Messrs. Ward, Wells & Co., the contractors, now employ 400 men, keep in steady operation nine blacksmiths' shops with two fires each, to repair and temper tools, have 12,000 pounds of cast steel in drills and tools in constant use, and have consumed 6000 kegs of powder, of 25 pounds each, in fourteen months. The tunnel is 19 feet high and 24 feet wide, where finished, and will be so all the way through. The work goes on night and day, with perfect system and order, Messrs. Ward, Wells & Co., have been at this job fourteen months.

A Queer Craft.

Those who go from the East to the West, and have occasion to travel on the Western waters, are often amused by the queer looking craft they meet with no queerer than the one described in the following Paragraph from the St. Louis Republican:

Arrival Extraordinary.

The Dolly-Hyandusendawsen arrived here early yesterday morning from the head waters of the Kentucky. She is not a steamboat, nor yet a flat boat, but a sort of a two mule power tug. The mules being set in motion, turn a water wheel attached to the stern of the boat. She is built somewhat in the fashion of the "Two Pollys," a well known craft that plied on the waters of the upper Ohio many years ago when the river was low. This boat is composed of two pirogues placed side by side, over which is built a deck, and above that the cabin. She belongs to some five or six enterprising families, who are emigrating to the West with their children and plunder.

American and British Navigation Laws.

In 1817, Congress passed an act permitting the vessel of any nation to enter cargoes of the products of their own and other countries into any port of the United States, upon a footing as favorable as vessels of the United States, whenever the government of any nation, would extend the same facilities to American vessels. The repeal of the navigation laws of Great Britain enables American vessels to enter cargoes from South America, the East Indies, or any foreign country, in any port of Great Britain, upon a footing as favorable as British vessels are entered. On the 1st of January next this law goes into effect, when the vessels of both nations will enter into a competition for the foreign commerce of the world.

Oregon.

Oregon is the greatest lumber country in the world. Around one mill, within a circle of three miles, stands timber enough to last a hundred years, the mill all the time cutting 6000 feet a day. The trees are from 6 to 10 feet in diameter, and some of them 300 feet high. They are felled into a lake, floated to the mill three miles, sawed by water power, and turned out at the side of the mill, whence a vessel takes them to California. Wheat in Oregon averages 65 lbs. a bushel, and Oregon flour brings $6 more a barrel at the gold mines than any other. The number of votes cast in Oregon, in June, was 943.

A Singular Discovery.

While some workmen were engaged in digging away a hill belonging to Mr. Williams, at Green Point, L. I., last wece, they discovered a cell made of Cedar, six feet wide and eight feet high, containing some salt hay, and bottles filled with a liquid resembling brandy in appearance, but of an oily taste. No entrance to the cell could be discovered, and the "oldest inhabitant" was not able to account for how it came there. Some skulls were also found near the same place, to which oysters had attached themselves, and grown firmly.

The First Cotton Factory.

A correspondent of the Providence Journal says:

"The American Quarterly Register for June contains some very interesting manufacturing statistics. The editor has fallen into an error, however, which we take the liberty to correct. Speaking of the factory erected in Bayfield, Massachusetts, in 1793, he says it was 'the first regular factory establishment in the United States.' There are at least two that took precedence of the Bayfield establishment, viz., one in Beverly, Massachusetts, erected in 1788 and chartered in 1789, and one in Pawtucket, established in 1790. The spinning and weaving in the Beverly factory was done by hand-power. In the Pawtucket factory the machinery was moved by water-power. In 1789 General Washington visited the factory in Beverly, and expressed a warm interest in its success. During that year ten thousand yards of cotton goods, such as corduroys, velveteens, &c., were manufactured there. It was a day of small things, indeed, but the representative of a branch of industry now vitally connected with our national prosperity."

Earthquake in Massachusetts.

The Bunker Hill Aurora says:—

"A very severe shock of an earthquake was felt in several of the towns in the middle of this county, on Monday afternoon, between 3 and 4 o'clock. Two very loud and heavy explosions were heard, and the earth and buildings continued to tremble during the moments which elapsed.

At Acton, Concord, and other towns, the people ran out of the houses and stores, supposing some terrible explosions of the powder-mill in Sudbury had occurred. At Concord, Acton, Carlisle, Bedford, Lexington, Lincoln, Stow, and probably many other towns, the shocks were distinctly realized, and it was generally supposed to have been the blowing up of some powder-mill. By some persons the shaking was said to resemble that produced by the rolling of something heavy in a room overhead. A similar shaking of the earth was felt in the same locality about a year ago, early in the morning.

Planting Chestnuts.

At a late farmers' meeting in New York, Mr. Rice, speaking of planting Chestnut timber remarked, that he plowed up a track of unproductive hill-side, several years ago, and planted it with chestnuts, in rows four feet apart every way. The first sprouts coming up rather crooked and scrubby, he went over the field, and cut them down close to the ground, which caused new sprouts to shoot up straight and vigorous. The trees are very thrifty, completely shading the ground, and grow more and more rapidly as the soil becomes strengthened by the annual deposit of leaves. So well satisfied is he with the experiment, that he is now placing other worthless lands in a similar course of improvement.

Important Decision in New Jersey.

The U. S. Circuit Court at Trenton has just declared a suit in which a plaintiff claimed title to land under the proprietors of East New Jersey, which was derived from the grant of King Charles II, to his brother the Duke of York, made March 12, 1654. This was a very comprehensive grant, beginning at St. Croix and extending to the east side of Delaware Bay, which grant invested the Duke of York with the property and the power of government. The court decided that "after the revolution, and the establishment of a new government, all royal rights and privileges became null and void."

Engineering Professorship.

The professorship of engineering in the Lawrence Scientific School of Harvard University, has been filled by the appointment of Lieut. Henry L. Eustis, late assistant professor of civil engineering in the United States Military Academy at West Point. The department is expected to be organised without delay for the reception of students.

Sixteen commissioners have fallen victims to their zeal in preparing a report upon bedbugs, in Edinburg, Scotland. They were massacred in their beds by the enraged populace of which they were taking the census.

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Popular Errors about the Rise and Fall of Sap in Trees.

BY PROFF. LINDLEY.

What curious hallucination is that which supposes the sap of trees to fall or settle in the winter into the roots! One would have thought that the notorious difficulty of cramming a quart of water into a pint measure might have suggested the improbability ef such a phenomenon. For it certainly does require a very large amount of credulity to believe that the fluids of the trunk and head of a tree, can by any natural force of compression, be compelled to enter so narrow a lodging at the root.

We shall assume the word sap to signify the fluids, of whatever nature, which are contained in the interior of a tree. In the spring the sap runs out of the trunk when it is wounded; in the summer, autum, and winter it does not, unless exceptionally, makes its appearance.—But in truth the sap is always in motion at all seasons and under all circumstances except in the presence of intense cold. The difference is, that there is a great deal of it in the spring and much less at other seasons.

When a tree falls to rest at the approach of winter, its leaves have carried so much more fluid than the roots have been able to supply, that the whole of the interior is in a state of comparative dryness, and a large portion of that sap which once was fluid has become solid in consequence of the various chemical changes it has undergone. Between simple evaporation on the one hand and chemical solidification on the other, the sap is, in the autumn, so much diminished in quantity as to be no longer discoverable by mere incisions. The power that a plant may possess of resisting cold is in proportion to the completeness of this drying proces.

When the leaves have fallen off, the tree is no longer subject to much loss of fluid by perspiration, nor to extensive chemical changes by assimilation. But the absorbing power of the roots is not arrested; they on the contrary go on sucking fluid from the soil, and driving it upwards into the system. The effect of this is that after some months of such an action, that loss of fluid which the tree has sustained in autumn by its leaves is made good, and and the whole plant is distended with watery particles. This is a most wise provision in order to insure abundant food to the new born leaves and branches when warmth and light stimulate them into growth.

During all the winter period the sap appears to be at rest, for the refilling process is a very gradual one. But M. Biot many years ago proved, by an ingenious apparatus, that the rate of motion of the sap may be measured at all seasons, and he ascertained it to be in a state of considerable activity in mid-winter.—Among other things he found that frost had considerable influence upon the direction in which the sap moves. In mild weather the sap was constantly rising, but when frost was experienced the sap flowed back again—a phenomenon which he referred to the contracting power of cold on the vessel of the trunk and branches, the effect of which was to force the sap downwards into the roots lying in a warmer medium; then, again when the frost reached the roots themselves and began acting on them, the sap was forced back into the trunk; but as soon as a thaw came on and the ground recovered its heat, the roots out of which a part of the sap had been forced upwards, were again filled by the fluids above them, and the sap was forced to fall. A large poplar tree in the latter state, having been cut across at the ground line, the surface of the stump was found to be dry, but the end of the trunk itself dipped with sap. Sap then is always in motion, and if it ever settles to the root in a visible manner, that is owing to temporary causes, the removal of which causes its instant re-ascent.

As to the idea that the bleeding of a tree begins first at the root, and in connection with this supposition, that what is called the rise of the sap is the cause of the expansion of buds and leaves and branches, nothing can well be more destitute of any real foundation. If in the spring, when the buds are just swelling, a tree is cut across at the ground line no bleeding will take place, neither will the sap flow for some distance upwards, but among the branches the bleeding will be found to have commenced. This was observed some years ago by Mr. Thompson, at that time the Duke of Portland's gardener, who thought he had discovered that the sap of trees descends in the spring instead of ascending; a strange speculation enough it must be confessed. The fact is that the sap is driven into accelerated motion first at the extremities of a tree, because it is there that light and warmth first tell upon the excitable buds. The moment the buds are excited they begin to suck sap from the parts with which they are in contact; to supply the waste so produced, the adjacent sap pushes upwards; as the expansion of the leaves proceeds, the demand upon tho sap near them becomes greater; a quicker motion still is necessary on the part of the sap to make good the loss; and thus from above downard is that perceptible flow of the fiuids of trees, which we call bleeding, effected.

The well known fact of trees sprouting in the spring, although felled in the autumn, proves that the sap had not at that time quitted the trunk to take refuge in the rooots. Such a common occurrence should put people on their guard against falling into the vulgar errors on this subject.

Swedish Laws with Respect to Intoxication.

The laws against intoxication are enforced with great rigor in Sweden. Whoever is seen drunk, is fined, for the first offence, three dollars; for the second, six; for the third and fourth, a still further sum; and is also deprived of the right of voting at elections, and of being appointed a representative. He is, besides, publicly exposed in the parish church on the following Sunday. If the same individual is found committing the same offence a fifth time, he is shut up in the house of correction, and condemned to six months' hard labor; if he is again guilty, to a twelve months' punishment of a similar description. If the offence has been committed in public, such as at a fair, an auction, &c., the fine is doubled; and if the offender has made his appearance at a church, the punishment is still more severe. Whoever is convicted of having induced another to intoxicate himself is fined three dollars, which sum is doubled if the person is a minor. An ecclesiastic who falls into this offence loses his benefice; if he is a layman who occupies any considerable post, his functions are suspended, and perhaps he is dismissed. Drunkenness is never admitted as an excuse for any crime; and whoever dies when drunk is buried ignominiously, and deprived of the prayers of the church. It is forbidden to give and more explicitly to sell, any spirituous liquors to students, workmen, servants, apprentices, or private soldiers. Whoever is observed drunk in the streets, or making a noise in a tavern, is sure to be taken to prison and detained till sober; without, however, being on that account exempted from the fines. One half of these fines go to the informers (who are generally police officers,) the other half to the poor. If the delinquent has no money, he is kept in prison until some one pays for him, or until he has worked out his enlargement. Twice a year these ordinances are read aloud from the pulpit by the clergy; and every tavern-keeper is bound, under a penalty of a heavy fine, to have a copy of them hung up in the principal rooms of his house.

These Swedish laws are far in advance of those of any other nation. If Great Britain would enact the like, she would be much happier in every respect, and we might well take the example ourselves.

Patents of Nobility.

When titles, says the Scottish Temperance Review, which were originally conferred on some individuals for meritorious actions, become mere forms, and are transmitted from generation to generation, without regard to the character of those who successively enjoy them, they degenerate at last into petrified vulgarities. The time is coming when the most noble the Marquis of Muffins will voluntarily abandon his ancestral caricature. When the Landers were travelling in Africa, they tarried for a time at the court of one of the native potentates. During their sojourn, the rations of his tawny majesty were not sufficient to prevent the travellers from consuming the contents of sundry hermetically-sealed tin vessels they had brought with them from Europe. The empty tins which, as a matter of course, were thrown away by the travellers, were eagerly picked up by the natives. Guess the surprise of the Landers, one fine sunny morning, on seeing one of the chief nobles stalk into court, with his head thrust into one of the identical empty square tins, on each of the four sides of which the English maker had printed in large characters, "Concentrated gravy." The splendid new helmet of the African duke excited the envy of his compeers, and even roused the covetousness of the king. Perhaps it is at this moment stiffly embracing the woolly head of the sable monarch. When "Chambers's Information for the People," however, begins to circulate in Africa, it will speedily be discovered, either that his majesty has no claims to the titles conferred upon him by his crown, or that his head is an "organised hypocrisy;" while in Europe the opinion is daily gaining ground, that all patents of nobility, however respectable, smell more or less strongly of "concentrated gravy."

Laws and Customs about Mechanics In Germany.

The different crafts in Germany are incorporations recognised by law, governed by usages of great antiquity, with a fund to defray the corporate expenses; and in each considerable town a house of entertainment is selected as the house-of-call, or "harbor," as it is styled, of each particular craft. Thus you see in the German town a number of taverns indicated by their signs, "Mason's Harbor," &c. No one is allowed to set up as a master workman in any trade unless he is admitted as a freeman or member of the craft; and such is the stationary condition of most parts of Germany, that no person is admitted as a master workman in any trade, except to supply the place of some one deceased or retired from business. When such a vacancy occurs, all those desirous of being permitted to fill it present a piece of work, executed as well as they are able to do it, which is called their masterpiece, being offered to obtain the place of a master work-man.

As soon as the years of his apprenticeship have expired, the young mechanic is obliged, in the phrase of his country, to "wander," for three years. For this purpose he is furnished, by the master of his craft in which he has served his apprenticeship, with a duly-authenticated wandering-book, with which he goes to seek employment. In whatever city he arrives, on presenting himself, with his credentials, at the house-of-call or harbor of the craft in which he has served his time, he is allowed, gratis, a day's food and a night's lodging. If he wishes to get employed in that place, he is assisted in procuring it. If he does not wish it, or fails in the attempt, he must pursue his wandering; and this lasts three years before he can anywhere be admitted as a master.

Hungarian Enclosed Wooden Bridge.

The first in date and merit is that of Schaffhausen, built over the Rhine, where the influence of that river's cataract, a couple of miles lower down—at Lauton—is felt in great force. From its firm construction, it was accounted the best wooden bridge in the world, though the flatness of the banks on each side offered no facilities, and the merit of its projection and construction is due to a common carpenter of the place, called John Ulrick Grubenman, in 1757. Its entire length was 353 feet 7 inches without support from below, its breadth was 15 feet 6 inches. With the passage of an individual it vibrated sensibly, but was kept immovable and firm when heavily laden wagons passed over it. The same builder in conjunction with his brother, built another hanging and covered bridge in 1778, over the Limmat, near Wittengen, with a span of 346 feet and with some improvement and greater firmness than the Schaffhausen earlier one. Both were burned in 1799 by the revolutionary hordes of France, when retreating after a defeat by the Austrians. In modern times the art of wooden bridge building has been carried to great perfection in Hungary, by the Austrian road architect, John Gross, who in 1807—8 built a covered bridge over the Waag in the county of Thurotz, on the principle of the former Schaffhausen, which seems to have served as a general model. The most curious feature in these Magyaric structure, is their small cost; the above was built for only 35,000 gulden, or about $15,000. So cheap is labor and indigenous material in that country, which may almost account for the obstinacy of the resistance offered by it to the Austrian arms, where men are so readily to be procured, and such immense woods exist to cover a retreat or to check the operations of an invader.

The Mormon City of Salt Lake.

A correspondent of the Pittsburgh Gazette, writing from the Mormon City, on the great salt Lake, says it covers more ground than Pittburgh, and contains about 10,000 Mormons:—

The whole valley is occupied by the Mormons, who build their houses entirely of sun-dried bricks. They are building a church of stone which is already one story high and will be a fine building. They assemble every Sunday morning under a large shed. The society is governed by a president, the twelve, and the seventy. The president and the twelve do all the preaching. I went this morning when the bell rang, to church, where I saw a large assemblage, some dressed quite fashionably, and all clean and neat. A brass band first played a lively tune, and then the clerk rose and read several notices. They are very strict in the administration of justice. One of their number stole a pair of boots from an emigrant, he was sentenced to pay four times their value, fined $50, and was compelled to work fifty days on the public roads. One of them was sentenced to death for borrowing some property from a neighbor and selling it; but finally, owing to the intercession of his family, his sentence was commuted to banishment. When they arrived they were very much troubled by some Indians, who killed their cattle and stole from them. They sent to remonstrate with them, and the Indians replied that their president was an old woman, and they would not mind him. They then sent out a company of soldiers, and killed a few, since which time they have not been annoyed.

Feeding Cattle.

An English writer observes that two great points in feeding cattle are regularity and a particular care of the weaker individuals. On this last account there ought to be plenty of trough or rack room, that too many may not feed together; in which very common case the weaker are not only trampled down by the stronger, but they are worried and become cowed and spiritless; than which there cannot be a more unfavorable state for thrift, besides, they are ever compelled to shift with the worst of the fodder. This domineering spirit is so remarkably prevalent among horned cattle, that the writer has a hundred times observed the master beasts running from crib to crib, and absolutely neglecting their own provender for the sake of driving the inferior from theirs. This is much oftener than is suspected, the chief reason of that difference in a lot of beasts after a winter's keep. It is likewise, he says, a very common and very shameful sight, in a dairy of cows to see several of them gored and wounded in a dozen places, merely from the inattention of the owner and the neglect of cuppling the horns of those that butt. The weaker animals should be kept apart; and in crib feeding in the yard, it is a good method to tie up the master beast at their meals.

Dr. Dean says, there should be more yards than one to the barn, where divers sorts of cattle are kept. The sheep should have a yard by themselves, at least; and the young stock another, that they may be wholly confined to such fodder as the farmer can afford them.

A Freak of Nature.

A specimen of a singular vegetable was recently taken from the Garden of Wm. Choate, Esq., of Derry, N. H. Seeds of squash and watermelon were both planted in the same bed, the result appears to be a vegetable, half squash and half melon—in this case the melon the larger end, and the squash the neck, and the line of distinction between the two is distinctly shown.

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New Inventions.

Improvement in Weaving Tapestry Carpets.

A lot of Tapestry Carpets was exhibited at the Fair, by Mr. C. Carvill, of 17 Broad st., N. Y., which attracted our attention, and we would have inserted a notice of them under the general head of "the Fair," but as we had heard something about them before, we thought it best to place the notice on our invention page. They were manufactured at Ida Mills, Troy, N. Y.. belonging to Benjamin Marshall, Esq., and were woven by new power looms, the invention of Mr. John Johnson, machinist, which will soon banish all the tapestry-carpet hand looms out of the market. The carpets which they make are of a very superior quality, and each loom can now make from twenty to twenty-three yards per day. When they can do this now—when they are comparatively new—it is reasonable to suppose that they will do more when they are longer in operation. These looms are said to be ingeniously and well constructed, and under the influence, sagacity and wealth of such a man as Mr. Marshal, the invention will be well protected. A new factory is erected for the weaving of them, and, perhaps, it is not too much to expect, that in a few years more, this beautiful style of carpeting will take the place of the ingrain, as the ingrain did that of the old rag carpet; and thousands of our people will thereby be enabled to enjoy such luxuries, which but for invention and improvements in machinery, would now find them with bare floors.

We often hear the remark made by those who do not look upon such things in the same light as we do, that all these improvements which *we* boast so highly of, "do not make people any happier—that without such things, and knowing nothing about them, people were just as happy as they are now." This may be all true, and "if ignorance is bliss," it is equally true that "it is folly to be wise." The real necessaries of life are indeed few—*plenty of food and comfortable clothing*—but who among us can be content and happy with the bare necessaries of life, when we can procure more than these. We admire the good sense and christian philosophy of those who can be happy and content according to their means and we have a far higher opinion of those who decorate their minds with virtue and noble sentiments, than those who impoverish their minds to decorate their persons or ornament their halls, but the argument in respect to cultivating the mind, is equally strong in our favor.

Apparatus For Saving Lives in Case of Shipwreck.

Lieut. McGowan, as we learn from the Philadelphia Ledger, left that city on last Saturday, with his life car and surf boat and apparatus to save life in cases of shipwreck. There are six stations to be established, for each of which Lieut, McGowan has with him a life car, surf boat, an iron Eprouvette mortar for throwing shot, with a line attached, 350 yards; there are also iron cased rockets, capable of carrying a line 275 yards, and smaller ones to be used when the standard vessel is not more than 175 yards distant. The stations are also furnished with a boat, wagon, and every other article that can be needed in carrying out the intentions of Congress, in making the appropriation of $10,000.

New Gun.

The N. O. Delta states that Mr. L. A. Latil, of the Arsenal, at Baton Rouge, has invented an improvement in fire-arms which is stated to be one barrel with four chambers, and is so arranged as to shoot as rapidly as the trigger can be pulled; and yet, in size and weight, is not heavier nor more cumbersome than an ordinary gun.

House's Telegraph in England.

We see it stated that Wilmer & Smith, of Liverpool, have become interested in House's printing telegraph, and mean to establish them upon that principle all over England. This telegraph has been patented in England for some years.

Bed Cooler.

The Reveille, of St. Louis, says that a Mr. Ruder of that place has invented a machine for fanning bed rooms, which it describes as follows:—

"The principle feature in the invention is a couple of fans, which may be placed under a bed tester, immediately over the sleeper or patient, (nothing would suit the wants of an invalid better,) and which after the winding up of certain weights, will keep in motion during six hours, they are made of any weight or size to work on a cradle or French bedstead."

[We believe that Com. Barron took out a patent for a machine of this kind, in 1828.

Converting Iron into Steel.

The Hartford (Conn.) Times says that a large Company in this State is about to commence the manufacture of steel from pig iron by the process patented by Mr. Isham of that place. It is stated that by this new process, common pig iron, in a few hours' time, is converted into steel of the finest quality, suitable to the best of cutlery; and being of more than ordinary toughness, it is superior for mechanical purposes generally.

We have been informed that Mr. Dickson, of Jersey City, who is now famous for making good steel, is about to commence the manufacture of steel at one operation from the pig.

RADLEY'S PATENT SPARK ARRESTER.

Figure 1.

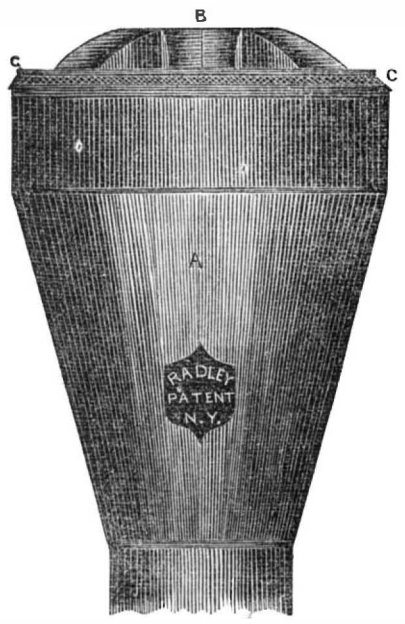
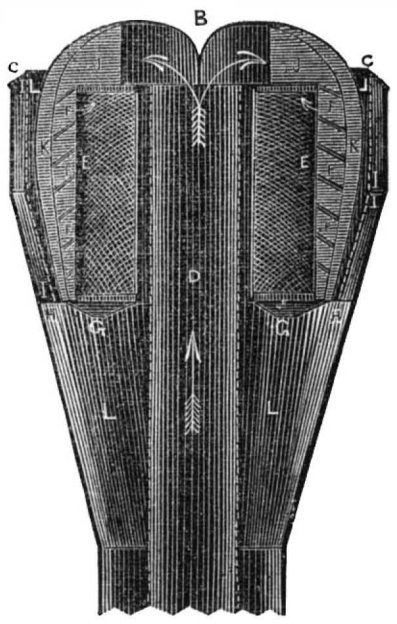


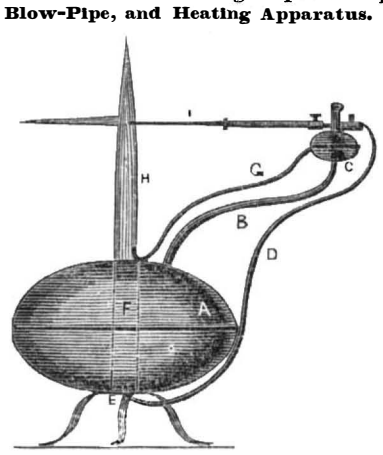
Figure 2.



This is an improvement on Spark Arresters, patented by Mr. Radley, and manufactured by Mr. E. R. Bennet, Nos. 48 and 50 Duane st., this city. The great object of this invention is not only to provide a good way to prevent the sparks from escaping outside, but also to prevent the screens from getting clogged and filling up, thus rendering it very durable, and removing an evil attributed to other spark arresters. It is well known that the steam of a locomotive is exhausted into the smoke pipe, and from its moisture, and the force with which the sparks are driven against the screen, its interstices are liable to choke up in a very short time, thus rendering it useless. This evil is obviated in this invention, as the sparks are prevented from being forced against the screen, and some of them having been tested for fifteen months, and others used on a great number of our railroads for a somewhat shorter period, their character for utility and durability has been firmly established.

Figure 1 is a side elevation, and fig. 2 is a vertical cut through the middle. The same letters refer to like parts. A is the outside case; C is a narrow screen around the top, between the inside and outside case, to allow any condensed air to escape therefrom. B is the top, with a series of radiating openings for the smoke from the screens. D is the smoke pipe, up which the smoke and sparks are driven, but when the sparks come to the top of this pipe they are deflected to the sides by an inverted central conical cap plate, when they pass through the channels, J J, and into the side chambers, K K, when, by their superior gravity they fall down through openings, G G, into the apartment, L L, down to the boiler head. No dirt of any kind can pass up from the apartment, L, although there is communication to the top through small openings, H, to the screen, C, above, for the compressed air to escape, for the channel is divided by branching angular inclined steps, I I, which prevent any dirt from getting out through the screen. These steps or shelves cannot be well set forth in this section, but the reader must suppose them to run to the right and then to the left, inside of the outside case, fig. 1. F F are a series of blinds extending down outside of the screens, E E. These blinds prevent the sparks from coming against the screens, while they allow the smoke, as indicated by the arrows, to pass freely through the screens and out at the top openings. This Arrester is, therefore, an apparatus secured in a case placed to sit snugly inside of the outside case, A, and it is divided into a number of screening cells, which throw the sparks down into L, through the orifices, G G, and never allow the sparks to come forcibly against the screens, thus preventing them from being choked up, and rendering the whole apparatus very durable and correct in its operations.

Alcoholic Self-Generating Vapor Lamp, Blow-Pipe, and Heating Apparatus.



This apparatus is the invention of Mr. K. Anderson, and the patent is owned by Messrs. Anderson, Farwell & Erwin, of Painted Post, Steuben Co., N. Y. It is capable of being applied to a hundred useful purposes, for jewellers, dentists, chemists, and others.

A is a vessel containing the alcohol or burning fluid. It is made with an opening or tube, F, through the middle of it. At first, for a moment, the heat of a lamp, candle or match, is applied in this opening till a slight vapor rises through the tube, B, into the small chamber, C, when it passes down the tube, D, and is ignited at the lower part, E, of the opening, F. It then generates its own vapor, part of which is conveyed to feed the tube, D, and part of which is conveyed to feed the blow pipe, I. There is a small cock on the blow pipe, and one on the pipe, D, at the top, to regulate the amount of vapor to each. In this engraving an auxiliary pipe, G, is employed, so that it might be used for a heating apparatus, to heat any kind of vessel. It is well known that hydrogen gas produces a most intense heat, and by using such a clean fluid as alcohol with this lamp or apparatus, it is capable of being used, at but little expense, in families for many purposes, especially in warm weather, for cooking, in cases of sickness, &c. For travellers on the distant wilds of the West, it is a most convenient apparatus for cooking their meats. With it, some alcohol and a lucifer match, a steak of the best venison or buffalo may be cooked, fit for an epicure, in a few seconds. Letters addressed (*p. p.*) as directed above, will meet with prompt attention.

The Great Sugar Discovery.

The discovery said to be made by a Belgian chemist, named Melsem, whereby it was represented that he could change the juice of beets, &c., into crystals, without any boiling or other preparation, than merely adding a powder to the juice, is doubted by some, and a Belgian newspaper speaks against the sugar produced as having a sulphurous smell. The substance used by Melsem is stated to be "the bi-sulphate of lime." About from one to two per cent. of this substance is added to the juice, and to the pulp of beets. The sulphurous acid of the bisulphite prevents all chemical changes, and the lime is present in sufficient quantity to neutralize any acid that might possibly be produced. After the addition of the bisulphite, the liquid is kept for a few moments at the temperature of 212° Fahrenheit, is then allowed to settle, and after being filtered or decanted, is concentrated to 30° of Baume's hydrometer, filtered anew, and left in a warm place, where it soon crystallises entirely.

Improvement in the Iron Manufacture.

Mr, Smith Salter, of Newark, N. J., has patented an improved mode of manufacturing iron, which must—if all stories are true—be of great benefit both to himself and our whole country. The inventor proposes to make wrought iron at a cost of $25 to $30 per ton—at least half the usual cost. His furnace has three combined chambers, one above the other, and all actuated by the same fire. The upper chamber is used for deoxidizing the ore,—impurities, such as sulphur, &c., being carried off at a low temperature: the middle chamber for fluxing and working, and the lower chamber for reducing and finishing. The metal is taken from the last named to the hammer or squeezers. The whole time occupied in this process, from the time the ore is put into the furnace until finished by the hammer, is only two hours.

New Propeller.

The St. Louis Reveille says that Mr. Ruder of that City, has secured a patent for a new propeller, which moves on the same principle as fishes. A large steel-ribbed fin is attached, in a horizontal position, at the stern of the vessel which, when put into motion by steam or otherwise, moves rapidly up and down, springing backward at each change, and giving the boat an impetus forward. Two smaller fins at either side, near the bow of the boat, answer the purpose of a rudder. The inventor calls the apparatus a "Whale" and certainly it is of a peculiar acquatic nature.

Lock's Magnetic Clock.

Proff. Lock's Magnetic Clock is finished, and the different parts have been put together. It is said to operate beautifully. It is to be placed in the National Observatory at Washington.

The Dover and Calais Telegraph.

The projectors of the line of telegraph across the British channel, at Dover and Calais, for uniting the wires which lead from London to Paris, have encountered an obstacle more formidable even than the anchors of the shipping. It is the dredging machines of the oyster boats. This fishing is carried on at that place by great numbers of dredging boats, which drag up hundreds of oysters at a draft. It is found difficult to protect the electric wire, extended across the bottom of this channel, so as to secure it against being broken by these dredging machines, it is anticipated, however, that some method will be devised of overcoming the obstacle.

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Scientific American

NEW YORK, OCTOBER 27, 1849.

Labor Lost.

It is no uncommon thing for some men to spend years of earnest thought and earnest toil, to produce works of striking ingenuity, and after having, as they supposed, brought their works to perfection, discover that others have preceded them, and their labor is lost. And instead of receiving the plaudits of the multitude, and rich rewards for their sleepless nights of anxious thought, and days of ceaseless toil, meet only with the mortifying intelligence, *labor* lost. Many, many disappointed ingenious men have we known, but we must say, that in a great number of cases, the individuals were to blame themselves, because they had not made sufficient enquiries respecting the progress of invention.

It is not possible for a man to walk safely in the path of mechanical invention unless he reads attentively and enquires diligently at those repositories of useful information, "scientific periodicals." During the past two weeks we were forcibly impressed with the necessity of saying a few words on this subject. At the Fair of the American Institute, a very respectable and good natured gentleman exhibited the steam water wheel described on page 208 of our last volume, and he felt not a little mortified when we pointed out the erroneous principle upon which it was constructed.—Within the present month we were shown the model of a rotary engine, upon which the inventor had expended much thought and toil for four years, during intervals of business. He was sanguine respecting his achievement, but he had not read our history of the rotary engine in Vol. 4. He acknowledged that had he "been acquainted with the Scientific American two years ago, it would have saved him a great deal of money and trouble, but now all his *labor was lost.*" When a person has his mind fixed upon constructing some new work of mechanism, he should first search for knowledge on the subject, in good standard books or sterling periodicals. He should then enquire, "is it useful ?" This is the grand criterian point. It is true that many inventions have been brought forward, which were at first looked lightly upon, but afterwards arose to great importance. This was the case with the steam engine and many other machines, and it is not always those engaged in occupations with which the invention is related, that are capable of judging correctly of its merits, because it is human nature to be wedded to what are called "settled opinions." It is not possible to give advice in many cases respecting what is *useful*, the inventor must rely, not stubbornly, but reasonably, upon his own judgment. If a machine has superior usefulness, it may take some time to find its way, against other interests and prejudice, into public use, but it will eventually occupy its proper place. The countless number of *perpetual motion* machines that have been brought forward, have all resulted in *labor lost.* Usefulness was not the main consideration in their construction, therefore, although many of them were ingenious and skillful mechanisms, yet after all they were but splendid toys —*labor lost.*

Stoves and Heating of Rooms.

The art of heating apartments by warm air, heated in a separate apartment, has been known since 1792. In this department of science, the names of two American philosophers stand pre-eminent, namely, Benjamin Franklin and Count Rumford. The best way to heat apartments, is from moderately heated surfaces. Highly heated surfaces are dangerous to health, and should be guarded against by every family. At one time, (and we do not know but it is done yet in some places) a number of public buildings, such as churches, &c., were heated by hot air raised to a high degree of heat by passing over plates raised to a high degree of temperature, and then distributed in pipes through the building. In one instance this plan had nearly proved fatal to most all the officers and clerks in the London Custom House. Care should be taken not to let the iron work of a stove get red hot, for in that case it absorbs the oxygen from the atmosphere, and vitiates the air of the room, rendering it unfit for the support of human life. Large surfaces, then, moderately heated, are the best means for heating apartments. A great number of heating apparatus have been patented in our country. With these we are not specially acquainted, to speak from experimental testing of their merits, but we examined one patent, after it was granted last year, belonging to a Mr. Hilson, of Albany, N. Y, which embraced some good new ideas, and was founded on scientific principles. It had a large heating surface, it fed in the air through a covered channel, thus preventing a low cold draft on the floor, and it had some other advantages which we now forget. There may be others embracing every economical and useful point, and we would gladly speak of them were they particularly known to us.

The patents on stoves are almost beyond counting. Every year displays new modifications and combinations, but many of these are not improvements. Some old kinds of stoves impress us with more favorable ideas of their good qualities than those of the most modern date. The stove plates are generally made now too thin, mere shells, *sweated* down to the utmost attenuity. They last but a short time to burn coal, at least those parts of them that are any way exposed to the fire, and in every case, the smaller the stove the thicker should be the plates, for a small stove requires to be heated to a greater degree of heat, to heat the same amount of air in an apartment, than a larger one. For merely heating apartments, the thinner the plates of the stoves and the greater the amount of heated surface, so much the better, for the surface may be kept at a very moderate heat, and warm as much air as a small stove at a higher temperature. Cooking stoves should always be plain, strong, and simple in their parts. They should have ovens heated alike on every side, easily cleaned, and their furnace easy of access to a shovel;—something which, so far as we have seen, and that is considerable, is overlooked in all coal stoves,—the grates need a radical reform.

Parlor stoves may wisely be designed for ornament as well as use, but the virtue of large moderately heated surface should never be overlooked. There are some singular ideas spread abroad respecting stoves of this kind, especially what are termed air-tight stoves. Any stove can be rendered air-tight with a tight damper, and that can be completely closed up in front. The whole virtue of air-tight stoves is in the mode of regulating the supply of air to produce a low combustion. The old self-feeding stove of Dr. Arnot, embraces every principle desired in such stoves. Some air-tight stoves have exploded by the carbonic acid gas being confined in them. This never would happen if there was a small vent left for it to escape through the smoke-pipe, and this should never be neglected, and in every case good ventilation should never be overlooked. As it regards the best stoves to use, who can give advice? Not one. Opinions are as various as themselves. We have pointed out the principles that should govern their construction and use, and those who are acacquainted with the same, and those who are not, will see that the reasons advanced are not unsound, but the subject is far from being exhausted, and it may at some future time form the subject of another article.

Coal in New York.

The Albany Evening Journal states that a seam of coal, four feet in thickness, has been discovered by Mr. J. N. Cutler, of that city, in Coeymans—a few miles only from Albany, on the farm of a Mr. Vanduzee. It is believed to extend through Albany, Green and Schoharie Counties. If this information is positively correct, (for a four feet seam is a good one,) it will be a source of great value to the Northern parts of this State. We believe that the report of the Geological Survey, of this State, says, "there are no coal formations in it." This will be a contradiction of that assertion, but as that survey was not very minute, its general correctness will not be invalidated.

Great Fair of the American Institute. No. 3.

INVENTIONS AND THE SCIENTIFIC AMERICAN.

There are no less than ten valuable inventions of machines displayed at the Fair, for the first time, engravings of which, together with descriptions, have appeared in our columns.—First, Mr. Ransom Cook's Electro-Magnetic Ore Separator, which can separate the crushed ore from the greywacke, quartz, &c., with a rapidity that is astonishing. Mr. Cook resides in Saratoga, N. Y. There were also exhibited the Steering apparatus, and the Capstan and Windlas apparatus of Mr. Andrews, of Boston. Also Mr. H. Law's patent Planing machine. Mr. Law now resides in this city, and his large machine is in full operation. Messrs. Lerow & Blodgett exhibited their neat and useful Sewing Machine. Dr. Worster exhibited his unrivalled Diving Bell; and Mr. Willard Day, of Brooklyn, his Sub-Marine Examiner. Messrs. Roys & Wilcox, of Berlin, Conn., exhibited their improved Wiring Machine, and the one for making stove pipe. All these machines were the subjects of great attention. Many knew them at once, having seen them in the Scientific American. They are all machines of practical value and of no common merit.

H. W. Chamberlain's Drawing Board attracted considerable notice, especially from a few draughtsmen, who could judge of its merits; and Mr. Hovey's Straw Cutters were much admired.

A number of other machines were exhibited with which our readers are already acquainted. Their merits almost tempt us to say a second time something in their favor, but our space forbids us to do so.

WARREN'S PATENE SPRING.

The spring patented by Thomas E. Warren, of Troy, N. Y., so applicable to all varieties of chairs, sofas, piano stools, and carriages of all kinds, is a most excellent invention. It was patented on the 25th of last month, and was generally admired.

PAGE'S WINDOW FASTENER.

This is the most simple window fastener that has come under our notice, and it is the cheapest. It has been patented recently, and a *true* judge of such things can see its merits at a glance. In lifting the window the hand has to be applied, but it fastens itself and locks the window at the bottom. It is eccentric, and is fastened on the sash of the window, occupying but about the space of a 25 cent piece. A silver gilt one only costs 25 cents, and those for common windows, all complete, less. Mr. L. B. Page, resides at Hartford, Conn. His invention was not entered in time to compete for a premium.

COWLES' PATENT VICE.

We notice a small model of this beautiful invention, an engraving of which was published in the 4th No. of the present Vol. of this paper. There is nothing in the *vice* way that compares with it for simplicity and utility. We hope the Committee will not overlook it in awarding premiums.

LATHES.

Messrs. Scranton & Parshley exhibit some beautiful engine lathes, in the machine room. For durability and excellence they are not excelled by any on exhibition at the Fair. See advertisement.

HYDRAULIC RAM.

D. M. Smith, of Meridith, Delaware Co., N. Y., exhibits a model of a Hydraulic Ram. We remember that Mr. S. received the first premium at the State Fair, Syracuse, last month. We have examined the principle of his invention, and believe it good.

STAFFORD'S FLOUR AND MEAL.

Some barrels of flour and meal were exhibited, as dried by a process invented by Mr. J. R. Stafford, of Cleveland, Ohio. The meal relieved of water, is perfeclly dry and sweet, and the difference in its swell, from even freshly ground meal which has not been kiln-dried, is very perceptible. Meal thus prepared will keep sweet for years, and (being guarded from external moisture,) may be carried round the world. The manufacturer is Mr. T. C. Floyd.

SPRING MATTRASS.

We believe that the benefits of sleeping on good mattrasses are beginning to be more generally appreciated. Those exhibited at the Fair by Mr. O'Neil, of 133 South Second street, Philadelphia, denominated "O'Neal's Patent Spring Mattrass," possess every essential quality.

Testimonial to the late Chief Engineer of the U. S. Dry Dock, Brooklyn.

On Tuesday of last week, Mr. W. J. MacAlpine, C. E., was presented with a splendid testimonial by the workmen who were employed under him. It consisted of a gorgeous salver, two pitchers and goblets of silver, richly chased, and of the value of $350.

The ceremony took place on the Masonry at the head of the Dock. The presentation was made on behalf of the workmen by Mr. Robert White, the Master Pile-Driver, an old man who has been employed during the whole progress of the work, commencing as a journeyman and gradually working up to his present position. We cannot give the address delivered on the occasion, as it is too long for our columns, but will give an extract to show what Mr. McAlpine has done:

"We have, guided by you for many years, been enabled to achieve a triumph over obstacles by many deemed insurmountable, and to found and complete a structure that will stand ever as a monument of your fame, and of which we all feel justly proud.

You have battled with the mighty sea and driven it back from its bed: deep amid the treacherous quicksands have you triumphantly gained a footing—and on this spot, thus wrested from old Ocean, reared this work of surpassing durability and beauty."

Let the quarrels of political leaders be fierce and selfish as they may, or cunning and grasping, as they eye the spoils which are to be their rewards—with them we have nothing to do, and to them, nothing to say, but in the matter of scientific honor, we must denounce the spirit which dictated the removal of an officer who has triumphantly overcome great difficulties, and founded and *nearly* completed a national work, of which we all may be proud. He should have had the honor of laying down "the top stone with rejoicings."

Copper of Lake Superior.

Dr. Jackson, U. S. Geologist, has written a letter to the U. S. Gazette, contradicting the report circulated, that he had said at the meeting of the American Association for the advancement of Science, that "the copper mines could not be worked properly for the want of sufficient means to cut and handle the huge masses of copper, at a cheap enough rate." He says:

"I stated thatthe working of native copper mines was a new business, not only in this country, but for Europe; and that it was impossible to predict with certainity the result of deep working; but that so far as experience had gone on Lake Superior, it had preved that for the depth of at least 536 feet, the vein at the Cliff Mine, on Eagle River, had enriched, and that huge masses of copper were extracted from that mine, and were cut up into pieces of a ton or more in weight, at the moderate cost of $7 per square foot of cut surface, and that the miners have acquired great dexterity in the management of these immense masses of copper.

Furthermore, I stated that the Pittsburg and Boston Company, working the Cliff Mine on the west branch of Eagle River, had declared a dividend of $10 per share to their stockholders, while the capital paid in was estimated at about $20 per share."

This is something like what Dr. Jackson would say. We confess that we had always our doubts about the other statements attributed to him.

New Jersey Zinc.

At a meeting of the Society for the Developement of the Mineral Resources of the United States, recently held at Philadelphia, the New Jersey Zinc Company presented some specimens of their ores, and several articles made from the metal. The zinc ore (oxide) of New Jersey is combined with iron ore called Franklinite, and the two are separated by roasting, pounding and sifting. The combination is mechanical, but there is some dispute about whether the Franklinite is magnetic or not.

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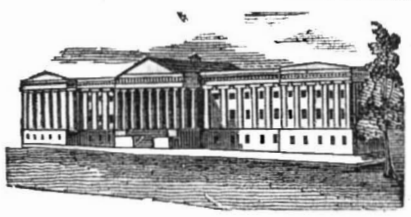

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending October 17, 1849.

To Nelson Goodyear, of New York, N. Y., for improvement in Elastic Cords for Suspenders. Patented Oct. 16, 1849.

To Hannibal Mathews, of Cincinnati, Ohio, for improvement in Cooking Stoves. Patented Oct. 16, 1849.

To Benjamin Scyler, of Franklin Co., Pa., for improvement in Plows.

To Charles P. Carter, of Ware, Mass., for improvement in Apple Pearers. Patented Oct. 16, 1849.

To Harmon Hibbard, of Henrietta, N. Y., for improvement in Tanning Leather by Tannin and Acids. Patented Oct. 16, 1849.

To Peter Von Schmidt, of New York, N. Y., for improvement in Ore Washers. Patented Oct. 16, 1849.

To Henry Burden, of Troy, N. Y., for improved machinery for drawing out and compressing heated iron. Patented Oct. 16, 1849.

To Matthew A. Crooker, of New York, N. Y., for improved journals for oscillating propellers. Patented Oct. 16, 1849.

To Benjamin Livermore, of Hartland, Vt., for improvement in Boot Crimps. Patented Oct. 16, 1849.

To Newman W. Smith, of Shutesbury, Mass., for improvement in Accoucheur's Chairs. Patented Oct. 16, 1849.

To Ashbel B. Haile, of Norwich, Conn., for improvement in instruments for arresting hemorrhage from internal organs or cavities. Patented Oct. 16, 1849.

To Joseph Reynolds, of Providence, R. I., for improvements in Looms for figured fabrics. Patented Oct. 16, 1849.

To Thos. G. Clinton, Geo. H. Knight, and Edward H. Knight, of Cincinnati, Ohio, for improvement in Cooking Stoves. Patented Oct. 16, 1849.

To Cornelius Kingsland, of Allegheny, Pa., for improvement in Grate Bars. Patented Oct. 16, 1849.

To James A. Crever, of Pittsburgh, Pa., for improved method of attaching knobs to doors. Patented Oct. 16, 1849.

To Thomas J. Green, of Jamaica Plains, Mass., for improvement in the Rockers of Gold Washers. Patented Oct. 16, 1849.

To Abner Follet, of Windham, Conn., for improvement in Bog-cutting Machines. Patented Oct. 16, 1849.

To Edwin B. White, of Nashua, N. H., for improved double cylinder Spike Machine. Patented Oct. 16, 1849.

To William Criswell, of Butler, Pa., for improvement in machines to manufacture Horse Collars. Patented Oct. 16, 1849.

To John C. Parry, of Pittsburgh. Pa., for improved method of giving a rotary motion to the milled iron in casting chilled rolls. Patented Oct. 16, 1849.

DESIGNS.

To Edward B. Finch, of Peekskill, N. Y., for Design for Stoves. Patented Oct. 16, 1849.

Great Patent Case.

We see it stated in the Boston papars that the great case on the infringement of Blanchard's patent has been decided for the present. The parties were Blanchards vs. Kimball. The most eminent counsel were employed, for plaintiffs, C. G. Loring and M. S. Clark; for defendant, R. Choate and B. R. Curtis. The case occupied the Court ten days and much evidence was produced upon both sides touching the capacity of the respective machines, to make irregular forms, such at lasts, &c., in exact conformity in all respects to a given model and the time occupied by each machine in doing so..

The defendant has built a machine for the same purpose, in many aspects, as the plaintiff's, and which the plaintiff alleged embodied the spirit and substance of his invention, under a mere change of form. The defendant admitted the building of the machine, and the use of it, but denied that it infringed upon the plaintiff's patent. Under this issue many subordinate questions of the fact and law were raised, respecting the true limits of the plaintiff's invention, and whether the defendant had infringed upon them.

Judge Woodbury after explaining to the jury the principles of the plaintiff's patent, instructed the jury generally, that if the defendant's machine embodied the substance and principle of the plaintiff's invention, as described in his specification, however much it might be changed in form, it was a violation of the plaintiff's patent. The jury were not able to agree, the foreman stated that the jury were very nearly agreed upon all points, except the amount of damages, and were discharged. It would appear then that they had agreed in regard to the infringement of the patent.

Trial by Jury in Patent Cases.--No. 6.

(Concluded from page 38.)

The Constitution vests Congress with power to make laws for the encouragement of Science and Art. The Patent Laws, as they now exist, are legislative enactments, to protect an inventor or discoverer in the exclusive right to make, use and sell his invention or discovery, in these United States, for the space of fourteen years, upon condition that the public shall enjoy the full benefit of the same after that period. The fundamental doctrines of our Patent Laws are derived from the famous Statute of Monopolies of James the First. The said Act states that "the validity of letters patent shall be examined, heard, tried and determined by and according to the common laws of the realm, and not otherwise." After a patent is secured for any invention, and a patentee believes that a certain person or persons is infringing his patent, he generally applies to one of the Judges of the U. S. Courts to grant an injunction to restrain the person from making, using or selling what he believes to be his invention. If the validity of the plaintiff's patent is questioned (the first case,) no injunction should be granted, but the plaintiff ordered to prove the validity of his patent before a competent jury, and the defendants ordered to keep an account of his manufacture, and give security to that effect. If the plaintiff proves the validity of his patent, another point has to be settled, viz., the real identity of the defendant's to the plaintiff's machine—the infringements of the patent. If this is proven also, the jury decides the amount of damages. According to our custom, the validity of a plaintiff's patent may be questioned, and form one part of the defence, in every court of law. This is not right. If in one trial the validity of the plaintiff's patent has been established, a certificate should be given by the Court to the plaintiff, and no defendant allowed to contest its validity afterwards. If there are men who still believe it to be invalid, although once established, let them be the plaintiffs, and let the 16th section of the Patent Laws be altered, so as to remove all ambiguity, and allow patents to be repealed by special suit, before a competent jury (one trial) —not otherwise. The defence to prove the invalidity of a patent, takes up far more time and is the cause of more trouble and expense to the patentee and the defendant also, than to prove or defend the plea of infringement.

The greatest trouble with patents in our country, has been among patentees—one sueing the other for infringement. As we stated in our last, there should be no injunction granted on application, nor common trial at common law had upon the petition of one patentee against another. The first thing should be a motion for repeal of the invalid patent, by a trial by jury, to decide upon the matter, "whether it embraces the real principles of the plaintiff's invention, or not." This course would soon bring matters to a conclusion.

When infringement of a patent is denied, no decision appears to us so just, or will give such satisfaction, as that of a jury; therefore, when a patentee believes that his patent is infringed, the best way of protecting his rights and the defendant's, would be an application for trial, upon the usual forms, when the judge should grant the same, demanding of the defendant to keep a correct account of his manufacture, and give security to the faithful keeping of the same. There will always be difficulties about patent rights, infringements, &c., just as there will be difficulties about other things. All that the law or country can do, is to provide a fair way to test the rights of both parties, and we sincerely desire to see a good and cheap way provided for a poor patentee to defend his rights against all that selfishly oppose them. At present this cannot be done. Able counsel is necessary, for there is a mass of knowledge to be acquired, before a lawyer can be good counsel in patent cases. There are very few attorneys who attain to eminence in managing patent cases. It is very easy for a well learned patent lawyer to discomfit his more ignorant opponent. To be a good counsel it requires skill and knowledge in scientific matters, to read the combinations of machinery and the different effects of different machines. Two machines may be nearly identical in their appearance, yet they may effect totally different objects, or produce quite different results; and two machines may present a very different appearance, and yet embrace the same fundamental principle in their action. The judges of our courts have a great weight of responsibility resting upon them, and if one makes a decision respecting one case, it too often happens that others strike the same keynote, when a similar case comes up before them, although the first may be wrong. Great wisdom, caution, and real upright, unbiassed feeling, is required in deciding upon patent cases, but we know all these qualities are not easily found united in any one body of men, assembled to decide upon any question.

Depth of the Ocean.

Messrs Editors—A statement said to be from the Officers of the Coast Survey, has been going the rounds of the papers to the effect that the water of Cape Hatteras was between nineteen and twenty thousand feet deep. If I am not much mistaken it was copied into the columns of the Scientific American. I wish to ask, in what way was the *fact* ascertained? My own impressien is that the heaviest "deep-sea-lead" would not sink to such a depth. Sir Charles Lyell in his late work says; "In fact these great ice-islands coming from Greenland seas are not stopped by the gulf stream which is a mere superficial current of warmer water flowing in an opposite direction, but are borne along from N. E. to S. W. by the force of the Arctic under-current, consisting of colder water, into which the ice-bergs descend to a great depth."—Vol. 1, page 17. Now if a "lead" could be sunk to such a depth what length of line would it-require making due allowance for these contrary currents? And would not a "lead" find its own density at less than that distance from the surface and float off at that level? I ask for information.

Very respectfully, J. Boardman.

Macon, Geo.

[We have no Report of the U. S. Coast Survey in our possession except one sent to us by J. W. Wampler Esq., which has nothing about the subject mentioned above in it. It would be well if the Officers of the government were a little more mindful of us, as all information of a Scientific nature, finds its way through our columns to the houses and homes of more of our people, than by any other source, so as regards the first enquiry we must remain silent.

But then *we* have a question to ask, "How could a sea lead not sink to that depth? It is a common opinion that water at a certain depth is very dense—that there are stratas of water at various depths of the ocean, where the "dead float about," where stones swim, and all such notions, and friend Boardman is possessed with the idea that there is a strata of water in the ocean as dense as lead. Such opinions are incorrect. What kind of substance would water be, compressed to the density of a metal like lead? If there was no bottom to the Atlantic Ocean, a piece of lead dropped into it would descend to the centre of our globe. This is self-evident to us. Suppose that a cubic foot of lead is one hundred times heavier than a cubic foot of water, it will occupy 100 times less space. Now if at the depth of 1000 feet beneath the surface of the ocean, a cubic foot of water would be reduced to double its density, (six cubic inches,) would not a cubic foot of lead be compressed in the same ratio, and from the superincumbent weight of water alone, it would possess the same qualities (100 times the gravity,) to pass through every foot of water below it, that it had to pass through the first 1000 feet. But people greatly err, in comparing water to the atmosphere, as it regards compressibility, and a more general acquaintance with the elements of mechanics, would remove the common opinions to which we have already referred. Water is almost incompressible, and this quality is most admirably taken advantage of in the application of it to press cotton, &c., in the well known Bramah Press, where the water is submitted to a pressure of many tons, without compressing it in the least. There is one instance on record where a weight of 1,100 tons was raised 100 feet high by two Bramah Presses, the water bore of each pipe being only one half inch in diameter. This will give us some idea of the incompressible nature of water. At the depth of 100 feet the pressure on a cubic foot of water is 6,250 lbs., and the same upon a cubic foot of lead, but the difference in favor of the lead is still a superior gravity of 647 lbs., for lead weighs 709.5 lbs. per cubic foot, water only 62½ lbs.

This much we have said, treating the subject scientifically, to remove wrong opinions and spread abroad true knowledge. Now for the proof fact—Sir James Ross, the great navigator, in his voyage to the Southern seas, obtained soundings with a line of 4,600 fathoms, 27,600 feet.

For the Scientific American.

Soils.

All soils are made from the disintegration and decomposition of the rocks into earth, and then united with decayed organic matter. The inorganic portions of soil consists of what are called the primitive earths: clay, silex, lime and magnesia; and of certain saline and metallic compounds such as common salt, gypsum soda, potash, and the oxides of iron and manganese. The organic constituents are decomposed vegetable and animal matters, the progressive docomposition of which, in conjunction with inorganic substances, air, and water, furnish chemical compounds of humus, carbon, ammonia, etc., all of which are essential to the perfectien of vegetable growth; sand, clay, and lime, are the three principal ingredients of all soils, and on the proper proportions and intermixture of these, the qualities of all cultivated lands, may be said to be depending. A soil is said to be sandy when it contains no more than ten per cent. of clay; a sandy loam it from ten to forty per cent of clay; and loam is from forty to seventy per cent. Should the clay average from seventy to eighty-five per cent. it is denominated a clay loam; from 85 to 95, a strong clay; and if no sand be present, it is pure agricultural clay. The same distinctions are made when lime is present in considerable abundance, five per cent. of carbonate of lime constituting a marl, and twenty a calcareous soil. A soil fitted for the growth of plants, must contain in a soluble form all the salts and mineral constituents which they require. These vary in different plants; their nature and quantity are determined by minute analyses of the ashes of each vegetable. The most important are: lime potash, magnesia, and iron, combined with sulphuric, phosphoric, and silicic acids, and chlorine. These salts, plants have the power to decompose and absorb. J. W. O.

Camphene.

Camphine and Pine Oil are synonymous terms, both preparations being highly rectified spirits of oil of turpetine. A new oil called the American Oil, has been patented and from the specimen afforded, it must answer the purpose of lubrication in the place of fatty oils.—It is obtained by the dry distillation of resin. Oil of a certain character has been before obtained from the destructive distillation of resin, but the inventors claimed that they have discovered a new hydrocarbon, not before known to chemists.—[Ex.] Who are the inventors?

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TO CORRESPONDENTS.

"G. M., of N. Y."—Yours of the 15th inst. was received, and its contents disposed of agreeably to your request. The only way we know of, to anneal cast iron, is to heat it and let it cool off gradually. The slower you can cool it, the softer it becomes.

"Wm. N., of O."—Your $3 was duly received, and as it required $2,75 for Volume 4, and consequently would leave but 25 cents to be passed to your credit—a smaller subscription than we can receive—we have entered you on our books for the whole of Vol. 5, leaving $1 to your credit. By sending us $1,75 more we will send you Vol. 4—or we will send the paper for one year and a half.

"A. H., of Me."—We have already sent you the letter to which you refer, and have also sent the cut of your mitre box to Mr. Morse, as you requested, some time since.

"D. A. S., of O."—We will rectify the mistake to which you allude, in so far as we can, the author of the work died before it was completed, and we do not know how many Nos. have been issued, probably not more than 3 or 4—as many as have been issued, we will exchange with you, if yours are not in any way damaged.

"D. J. S, of N. Y."—We do not discover any new principle in your plan for propelling. Experiments have been made in England, as well as this country, embracing the spiral fan wheels; the result has failed to establish them in preference to the common system.

"G. B., Jr. of Tex."—Your papers have been received and are now undergoing a thorough examination. We shall report by letter in a few days. From what we have been able to discover from a hasty perusal of your remarks, we are of the opinion that you have struck upon a valuable process.

"N. M., of C."—Your letter addressed to Messrs. Foster & Bailey is still in our possession; we do not know their whereabouts. If either of the parties see this notice they will please address us.

"J. B., of Va."—We forwarded the specification of your improved cultivator, to Good Intent P. O., more than a month ago. Have you not received it, or what is the matter? Execute it and send it back again as early as possible.

"W. B., of Ind."—There is no better work upon mill wrighting than Evan's, which can be purchased for less than about $8. We have credited you with the money, sent which will be appropriated as you may request.

"A Subscriber," Columbus Geo.—Came too late for attention this week.

"I. F. B., of Geo."—Mr. P.'s machine is not in operatian, therefore we cannot compare your sample, with what can be done by his.—We shall speak of yours in our next. $4 received, and your name, with Mr. A.'s, has been entered for one year.

"S. P. S., of Ky."—We forwarded 2 copies of the Mechanical Principa, on the 22d inst.—Your name has been entered for one year's subscription.

W. S., of Pittsburg.—The back numbers of this vol. were forwarded to you sometime since. Your name is entered on our mail book and all is correct so far as we can make it.

"R. & S., of N. Y."—Your papers have been received, and will be attended to as soon as possible.

"N. G. F., of N. H."—We do not see anything particularly novel in your invention, to warrant an application for letters patent.

"A. J., of Mich."—We do not remember of ever having seen a plan like the one described by you; friction rollers are, however, common property, this fact you would have ascertained had you been a reader of this journal. In reference to your latter enquiry, we assure you that every communication addressed to this office, is strictly confidential. We are much obliged for your interest in extending the circulation of the Sci. Am. $7 received.

"S. P. O., of Ct."—Like most of the human family, you have many things yet to learn. The ideas put forth in your communication, are entirely erroneous. The subject does not admit of such constructions as you put upon it. Refer to Vol. 3, of this journal and you will find an article fully sustaining the ideas communicated to you by letter in August last. We mean to discuss all subjects in a candid manner, and before you should have allowed your temper the mastery, more attention was required to the merits of the subject. The originators are gentlemen above your attacks. We cannot publish your article, it reflects to strongly upon the parties referred to. If you desire it however we can hand it over to them for perusal.

Will our unknown friend who sent the Cork Cutting Model, please write us again and not forget to sign his name to the next letter.—Our correspondence is so large that it would puzzel us much to cypher out names, even if they are subscribers. Don't be afraid of your name friend. We will keep it secret if you desire.

"A. T. P., of Ill."—Your observations in relation to the present Patent Laws, although somewhat stringent, are very correct, and we are glad to perceive that the mechanics in your section are awaking to the importance of having them modified. We believe in the first duty of the coming Congress, to take this matter in hand, and if possible afford adequate protection to the labors of inventors. Their interest seems not to be regarded in the least, by our law makers. We were informed not long since by a M. C., that he intended to introduce a bill for a modification of the Patent Laws, and also make efforts to render the Patent Office a trifle more useful to inventors.—Commissioner Ewbank seems very obliging, and we trust he may succeed in effecting reforms in the office. We know that strong prejudice exists among inventors against the present Board of Examiners, often without cause.

"H. F. D., of Pa."—An engraving of your invention published in the "Scientific American" would give the article more publicity than publishing a notice merely that you had such a machine (without describing it) in half the papers in the United States. Take our advice, friend, have a descriptive engraving of your apparatus first published in the Scientific American, and after that a few notices in other papers might do you some service. In bringing out a new and valuable invention nothing is more necessary to render the thing popular than by first describing the invention in some standard Scientific Journal.

"P. W. S., of Md."—We shipped one "Camera" by Adams & Co., on the 24th.

O. W., of N. Y., I. S., of Mich., and A. C., of N. Y.—The specifications and drawings of your inventions have been executed, and are remaining at this office subject to your order—call and sign your papers early, or we shall forward the documents to your respective homes by mail.

Money received on account of Patent Office business, since Oct. 17, 1849 :—

J. W. C., of Ind., $20; C. A. & Co., of Ill., $20; T. G. U. F., of N. H., $30; J. Du B., of Ala., $8; F. R. S., of N. J., $40; N. S. T., of Md., $35; F. C. D., of Me., $10; I. S., of Mich., $10.

Agents.

E. W. Spaulding of Montpelier, Vt., and Dr. Wilkinson, of Brandon, are agents for the Scientific American.

ADVERTISEMENTS.

Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

MUNN & CO.,
128 Fulton street, New York.

PATENT HOISTING MACHINE FOR SALE.—The right to manufacture, sell, and use in the State of New York, Geo. E. Warner's patent apparatus for hoisting bricks, mortar, etc., upon buildings while erecting. Letters Patent were granted on the above invention the 5th of last June, and a description published in the Scientific American page 292 Vol., 4. The right of the State of New York will be sold cheap. Address N. & C., care of Munn & Co., this office 6

Z. C. ROBBINS,
CONSULTING ENGINEER AND COUNSELLOR FOR PATENTEES.
Office on F street, opposite Patent Office, Washington, D. C. j29 tf

STEAM ENGINE FOR SALE.—A Steam Engine of 80 horse power, with two return flue boilers, all complete. The Engine was made by Hogg & Delamater, of this city, and has been run less than one year—cost $6000 and will be sold for $3000—the manufacturing company that used it having failed.

Application must be post paid, to
SAMUEL C. HILLS,
Machinery Agent, 43 Fulton street,
Who has constantly for sale, Engines, Lathes, Planers, etc. etc. 6 4

THE YANKEE BLADE.—A large and handsomely printed Weekly Journal, devoted to Literature, Art, Education, Morals, Criticism, Fun, News and Story Telling—and especially desirable to the Family Circle. Published every Saturday, at $2 per annum, in advance.

All letters, (post-paid,) should be addressed to MATHEWS, STEVENS & CO., Publishers "Yankee Blade," No. 12 School street, Boston, Mass.

N. B.—Any person desirous of receiving a copy of the Yankee Blade," as a sample, can be accommodadated by notifying the publishers by letter, post-paid.

OPINIONS OF THE PRESS.

THE YANKEE BLADE.—Our readers need not be told that the Yankee blade is an excellent paper. The fact is known and undisputed among all communities into which the paper has been introduced and wherever the name of Mathews, its worthy and accomplished editor, has been made familiar. It gives us pleasure to notice that the labors besto wed on the Blade are justly appreciated by the reading public, and that the editor finds consolation and reward, as well in its popularity, as in the more substantial evidences of friendship and patronage. Very recently, the Blade came to us as bright and shining, and as clear of the least particle of rust, as though it had never before been in use, and when we took it up and turned it over and over, examining its smoothness and keen glittering edge, we could not feel less than gratified at the success of our Yankee friend, and could not do less, the first opportunity, than express all that we felt.—[Godey's Philadelphia Dollar Newspaper.

HOLDEN'S DOLLAR MAGAZINE. The present proprietor of this popular Magazine in continuing its publication, is determined that it shall lose none of its merits and attractions which it possessed under its former one, and which has made it so desirable a Periodical for Family Reading. It is made up of Tales, Translations, Essays, Biography, Poetry, Sketches of History, Sentiment and Humour, Reviews, Criticisms and Topics of the month, by writers of the highest order of talent and its literary merits are unsurpassed. It is furnished at the low price of One Dollar a-year, in advance, the yearly volume containing 768 pages, making it the best and cheapest Dollar Magazine published. Five copies will be furnished for $4, and twenty copies for $15. Letters must be addressed, HOLDEN'S DOLLAR MAGAZINE, No. 109 Nassau Street, New York, (post-paid). Money may be sent at the risk of the proprietor, provided a description of the bills are kept, and mailed in the presence of the postmaster as evidence of the fact.

W. H. DIETZ, No. 109, Nassau St.,
4 1 m* Proprietor.

PARKER'S WATER WHEEL.—The Subscriber offers rights for Sale, by Counties or States, of the Best Water Wheel for Grist Mills, in the United States, which will grind a bushel of corn from three to eight minutes, under a head of water from five to ten feet. It being at the same time simple and durable; any person purchasing a State right will be furnished with a model, and by addressing the Subscriber at S. C., will have all satisfactory information given.

4 3m* EMANUEL PARKER.

ENGINE LATHES.—The Subscribers are now manufacturing, and have constantly on hand, an extensive assortment of the best patterns of Engine Lathes, which they offer at the following prices:—A Lathe 8 feet long, swing 19 inches, with back and screw gearing, drill chuck, centre and follow rest, $200; ditto, without screw gearing, $150; ditto, without fixtures, $125. For particulars of other sizes, address, (post-paid) SCRANTON & PARSHLEY, New Haven, Ct.

Munn & Co., Scientific American Office, are Agents for the above Lathes. Universal Chucks for sale at $15. 4. 3m.*

NOTICE TO CAPITALISTS.—We are authorized, by a company in the State of Ohio, to call the attention of those interested in the manufacture of flour and woollen goods, to the sale of a large and well established concern in one of the best regions of tha great State. The ill health of the partners compels them to retire from business. The full particulars in relation to the above property, may be had by personal application to the subscribers, or by letter, post-paid.

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3 6* 128 Fulton st., N. Y.

DAGUERRIAN MATERIALS.—JOHN ROACH, Optician, 79 Nassau st., N.Y., is manufacturing American Cameras of imported Flint Glass, which are warranted equal to any. Also, on hand, Voightlander Cameras. Plates, Cases, Chemicals, &c. Galvanic Batteries for gilding and silvering. Electro Magnetic Machines for medical purposes. Thermometers wholesale and retail. Object Glasses of various sizes, ground to order and warranted achromatic. 2 10*

EMPLOYMENT.—Pleasant and profitable employment may be obtained by a number of intelligent and active young men, in every County, by addressing postpaid, FOWLERS & WELLS,
Publishers.
129 and 131 Nassau-st, New-York.

P. S.—A small capital, with which to commence, will be necessary. Agents who engage in this enterprise will be secured from the possibility of loss.
5 3m*

THOMAS E. DANIELS' PLANING MACHINES—Manufactured by HOWE, CHENEY & CO., Worcester, Mass. All orders for the above machines executed at short notice and satisfactory prices. 2 4m*

GUN FOR SALE.—A fine sporting Shot Gun, of English manufacture and of superior finish, for sale at this office. It belongs to one of the proprietors of this paper and will be sold for $25; it is nearly new and cost $50. Address "Scientific American."

NOTICE.—We have constantly on hand and for sale:

Minifie's Mechanical Drawing Book, bound in calf,	$3,00
Cook's Condensing Engine, Plate and Book,	3,00
Leonard's Mechanical Principia,	1,50
"Scientific American," bound, 3d and 4th vols.	2,75
Scribner's Mechanics,	1,50
Ewbank's Hydraulics and Mechanics,	2,50
Morfitt's Chemical Manipulations,	2,50
Ranlett's Architecture in numbers, each	50
Arnott's Gothic Architecture " "	25
Camera Lucidas,	$6,00

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LAW'S NEW PLANING MACHINE—For boards and plank, is now in operation in this city—planing, tonguing and grooving at the same time, with rapidity and beauty. It is believed to be superior to any other machine, as it will do the work of two or three rotary machines, and for all Southern, and the majority of Northern lumber, the execution is much better.

Machines, with rights for States, or Counties, can be had by applying to the subscriber, at 216 Pearl street, or at Collyer & Dugand's mill, foot of West Fourteenth street, where the machine is at work.

2 tf H. LAW.

SUPERIOR TURNING LATHES.—James Stewart, 15 Canal st., and 106 Elm st. is constantly manufacturing and has now on hand between 50 and 60 superior Lathes of the following descriptions and at reasonable prices, namely:

Dentist's Lathes, very highly finished.
" " common,
Brass and Wood Turner's Lathes.
Jeweller's and pencil-case maker's, very superior.

J. STEWART is also authorized to act as agent for the sale of the celebrated Lathes manufactured by James T. Perkins of Hudson, of large size and at prices from $250 to $800. A specimen of this description may be seen at his factory as above. j27 tf

FAIRMAN'S PATENT UNIVERSAL CHUCK, FOR LATHES.—Oliver Snow & Co.'s Hand Planing Machines, also Lathes for dentists, Jeweller's, Wood Turners, &c. Lathe Wheels, Bands, Hooks and Eyes, Circular Saws, Saw Mandrill's and every other description of Tools for Machinists, Carpenter's, Coachmakers, &c., constantly on hand at WOOD'S old established Tool store, corner of Chatham and Duane streets, New York.

Planes made to order and warranted.

Carpenters' and amateurs' Tool Chests, &c. 49 3m*

BRITISH PATENTS.—Messrs. Robertson & Co., Patent Solicitors, (of which firm Mr. J. C. Robertson, the Editor of the Mechanics Magazine from its commencement in 1833, is principal partner,) undertake THE PROCURATION OF PATENTS, for England, Scotland, Ireland, and all other European Countries, and the transaction, generally, of all business relating to patents.

Instructions to Inventors can be had gratis, on application to Mr. THOMAS PROSSER, 28 Platt street, New York; as also the necessary forms of Petition and Declaration for British Patents.

PATENT OFFICE,
m1 tf 166 Fleet street, London.

JOHNSON'S IMPROVED SHINGLE MACHINE.—The subscriber having received letters patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one-eighth more shingles can be sawed in the same given time than by any other machine now in use. Manufactured at Augusta Maine, and Albany, New York. J. G. JOHNSON.

Augusta, Me., Oct. 28, 1848. o28 1y

LAP WELDED WROUGHT IRON Tubes, for Tubular Boilers, from 1 1-2 to 8 inches in diameter.—These are the only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France, and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
m1 28 Platt street, New York.

TO INVENTORS.—The subscriber begs leave to inform inventors and others that he manufactures working models of machinery &c. in a neat workmanlike manner. Patterns of every description made for Castings. Scroll sawing neatly executed.—Mathematical and Nautical Instrument Cases of every description. JOSEPH PECKOVER, 240 Water street N. York, (between Beekman st. and Peck Slip.) j30 5m*

TO IRON FOUNDERS.—Fine Ground Sea Coal, an approved article to make the sand come off the Castings easily; fine bolted Charcoal Blacking; Lehigh fine Dust, and Soapstone Dust for facing stove Plates, &c. &c.; also, Black Lead Dust, for sale in Barrels, by GEORGE O. ROBERTSON,
y28 4meow 303 West 17th street, New York.

ADEE'S AMERICAN CAST STEEL Works, (at the foot of 24th st., E. River, N. Y.) The above works are now in successful operation, and the proprietor would respectfully call the attention of machinists and all consumers of the article to an examination of his Steel, which he is warranted by the testimony of the principal machinists and edge tool makers of this city, in recommending as fully equal in every respect to any ever used in this country.

A full assortment of the different sizes constantly on hand, which the public are respectfully invited to call and examine at the office of DANIEL ADEE,
51 6ms 107 Fulton street, New York.

BLAKE'S PATENT FIRE PROOF PAINT, from Ohio, which in a few moments turns to slate or stone, protecting whatever covered from the action of the weather and from fire. Purchasers should be particular and see that every barrel is marked "Blake's Patent Fire Proof Paint," as there is any amount of worthless counterfeit stuff in the market, called fire proof paint. The genuine article for sale by the patentee, at No. 3 Broad st, N. York.

51 12* WILLIAM BLAKE.

FOREIGN PATENTS.—PATENTS procured in GREAT BRITAIN and her colonies, also France, Belgium, Holland, &c., &c., with certainty and dispatch through special and responsible agents appointed, by, and connected only with this establishment.—Pamphlets containing a synopsis of Foreign Patent laws, and information can be had gratis on application

JOSEPH P. PIRSSON, Civil Engineer,
3 tf Office 5 Wall street, New York.

CAMERA LUCIDA.—Notwithstanding the demand for these useful instruments has been so great, we are yet able to supply orders for them.

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PHILOSOPHICAL AND CHEMICAL Apparatus for Colleges and Schools, and Engineering Instruments.—JAMES GREEN, 175 Broadway, New York, and 43 South street, Baltimore, Manufacturer and Importer of every kind of Philosophical and Chemical Apparatus, and Optical and Mathematical Instruments, Barometers, thermometers, telescopes, Drawing Instruments, pocket Compasses, &c. wholesale and retail. Experimental Apparatus and Models made to order. 1 3m*

BARLOW & PAYNE, Patent Agents and Consulting Engineers, 89 Chancery Lane London
m12 tf Patent Journal Office.

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Scientific Museum.

DYEING BLUE.—Dissolve one part of indigo in four parts of concentrated muriatic acid ; to the solution add one part of dry carbonate of potash, and then dilute it with eight times its weight of water. The cloth or yarn must be boiled for an hour in a solution containing five parts of alum and three of tartar for every thirty-two parts of cloth or yarn. It is then to be thrown into a water bath previously prepared, containing a greater or smaller proportion of diluted sulphate of indigo, according to the shade which the material is intended to receive. In this bath it must be boiled till it has acquired the wished for color.

TO DYE YELLOW.—Wool may be dyed yellow by the following process : let it be boiled for an hour with one-sixth of its weight of alum dissolved in water as a mordant. It is then to be plunged, without being rinsed, in a bath of warm water, containing as much quercitron bark as equals the weight of the alum employed as a mordant. Turn the cloth through the boiling liquid till it has acquired the intended color. Then stir in one-hundreth part of the weight of cloth of powdered chalk, and continue the boiling eight or ten minutes longer.

For a Bright Orange or Yellow Color, the oxide of tin must be used as the mordant. To make it a *bright* yellow, a little alum must be used with the tin. If a little be added, it will give the yellow a delicate shade.

TO DYE BLACK.—Boil the wool, cloth, or yarn two hours in a decotion of nut-galls ; afterwards keep it two hours more in a bath, composed of logwood and sulphate of iron kept at a *scalding* NOT boiling heat. During the operation the material must be frequently taken out and exposed to the air. The proportions are five parts sulphate of iron, thirty parts logwood for every one-hundred parts of cloth, yarn, or wool. A little acetate of copper added to the sulphate of iron improves the color.

[We select the above receipts from the Louisville Journal, which copies them from the North American Farmer. As they will no doubt have a wide circulation, we would like to correct the errors in them, as they may lead to expense, waste and immediate injury, both to stuffs and cloth. 1st—To dye blue, never use muriatic acid, it will destroy the coloring qualities of the indigo, and make a dirty greenish black liquor. The proper acid is good sulphuric—and don't use any potash, and the blue can be dyed without the tartar or alum. It is at best a fugitive color. For farmers the *old fashioned* way for wool is the best. The above will not dye cotton, but the sulphate of indigo dyes silk, and does well to renovate ribbons, &c.

2nd—By scalding with boiling water, some quercitron bark, and then using the clear, boiling it with some of the muriate of tin in a clean tin or copper kettle, a beautiful yellow will be dyed on flannel or cotton, and by adding a little tartar and ground cochineal, a beautiful salmon color, or an orange color, will be produced.

3rd—If persons want to spoil their cloth, they will dye it black, as above directed. In dyeing black first boil the woollen cloth in two ounces of copperas to the pound of wool, along with a very minute quantity of sumach. This is done for an hour, when the cloth is taken out, dried and then boiled in a solution of logwood, at the rate of four or five ounces to the pound. This is boiled for one hour, and a good black is produced. If the color is grey, it wants more logwood—for some is very bad; if too brown, it has too much logwood in it, and it has to be removed by washing the cloth well first, and then running them through a weak acidulous liquor, such as a little sulphuric acid in water. They must be well washed after this.

Of the many receipts published for the benefit of our farmers, we are sorry to say, that we can now and then only find a correct one.

Liquid Hydrogen Gas.

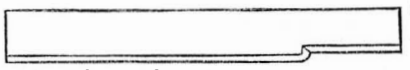
Mr. E. Brown, of Preston, Eng., has discovered a mode of reducing hydrogen gas to a liquid. This discovery may be of great importance to ærial navigators. A paper on the subject is soon to be presented to the Royal Society.

Hollow Iron Moulding.

[Continued from page 40.]

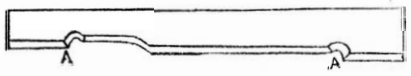
A core-bar for a pipe of any given inside diameter is selected two or three inches less in diameter, with the view of providing for hay-rope and loam, by which the core is made up to the necessary thickness. The loam, which forms the external coat of the core, is made as open as practicable by augmenting the usual proportion of sharp sand in its composition. The hay, also, which is simply twisted into ropes to facilitate its application to the core, fulfils the important office of a conducting medium for the air forced through the loam, leading it from all parts of the surface to the vent

FIG. 8.



holes in the core-bar. The method of applying the hay and the loam is simple. The core-bar is rested by its pivots on two iron tresses, the upper edges of which are formed with corresponding semi-circular or triangular dentations, to receive the pivots. Thus placed, the core-bar is caused to revolve by a crank-handle applied at one extremity, during which operation the rope is led on regularly along the bar from end to end, and fastened there. It must be tightly done, as any slackness in the rope will permit it to yield when subjected to the pressure of the iron, which has the effect at least of altering the form of the pipe, if, as in some cases, it does not break up the core and spoil the casting. Before finishing the core with loam, the hay receives a slight coating of it all over, as a cement to smooth down the surface. This being dried, for the succeeding application of the loam, a loam-board is necessary. This is a board of sufficient length to rest upon the tresses which support the core. Along this board is laid the loam intended to form the core. The edge of the board is cut exactly to the form of the

FIG. 9.

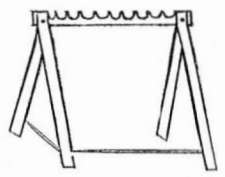


core, being, indeed, a half-skeleton reversed. This board being then set along-side the bar, and weighted down at the extremities, at a distance of the half diameter of the pipe from the centre, it is evident that, as the core-bar revolves, and the loam is pushed over upon it, there will ultimately be formed a coating of loam completely enveloping the coat of hay, which shall also possess the figure of the core.

Fig. 8 shows the loam board employed in constructing the core of the pipe, (fig. 6—see last number.) It will be observed to follow the outline of the core. Fig. 9, in like manner, represents the loam-board that would be required to form the pipe itself, (fig. 5,) were there no wood pattern of it. In such a case an additional coat of loam is run by means of it upon the core. (fig. 6.) In this way, it is evident, a loam pattern is at once formed. In setting the board, the parts A A, fig. 9, will apply to the same parts, (A A, fig. 6), which, in so far, serve for a guage. The misplacing of them exactly opposite each other is to be guarded against, as there is not the same security

FIG. 10.

FIG. 11.



for their being correctly placed. Before receiving, however, the addditional thickness, the core must be washed over the surface with charcoal and water, that the thickness may be easily separable afterwards, and also thoroughly dried in the stove. In the meantime, having finished and dried the loam pattern, it receives in like manner a wash with charcoal water, and is ready to be moulded. This being done in the usual manner, the thickness is peeled off, and the naked core replaced in the mould. To aid the stiffness of the core, steeples are planted here and there over the surface of the mould. Fig. 10 is a cross section of the body of the core. There are three concentric piles—the inmost, which is the core-bar, with several vent-holes in section, and the cross-knee at the end ; the next is the hay, and the external coat is the loam. Fig. 11 is a sketch of one of the iron tresses used in the work.

All wood patterns of pipes are constructed in two halves, which have two or more pins in the one entering corresponding recesses in the other, to prevent their shifting when put together and moulded. In proceeding to mould a pipe, a laying-down board is usually employed, which is simply a straight piece of wood as long and as wide as the moulding-box. Upon this board one half of the pipe is laid with the flat side down, the box is placed over it and rammed ; the whole is inverted, and the board lifted off. The remaining half of the pipe is set upon the imbedded half, and the upper box over it, and linked to the under one ; the upper box being rammed, the patterns are loosened, as we have in other parts described, and longitudinally also by blows upon the ends. The boxes being parted, the patterns removed, and the moulding blackwashed with blackening, the core is set in, and the box closed. Small pipes, when there are several to be cast, are usually moulded in pairs in one box, when green sand is employed as a moulding material. The metal is poured in at one entrance, which branches to each moulding ; shortly after which streams of aqueous vapor mixed with hydrogen and other gases, arising from the imperfect combustion of the charcoal and hay, are expelled from the extremities of the core-bars, sometimes resolving themselves into luminous jets. Soon after the metal is poured, the castings are turned out to cool ; after which the core-bars are drawn from them, which is a comparatively easy task, as the hay has been for the most part consumed, and of course occupies less bulk. Long small rods of iron are next introduced, with scrapers formed on the ends of them, and are drawn from end to end, to clear the interior of the pipe of the remains of the core.

Choloretic Discovery.

Th London Medical Gazette states that a most important discovery has just been made known by certain Doctors Snow, Budd and Brittan, and other celebrated physicians, respecting the cholera. They have prepared a very long report, which will soon be published, in which they show that the cause of malignant cholera is "a living organism of distinct species." Dr. Budd procured water from different parts of London, and detected organisms in great numbers in every specimen of drinking water. He states, in a long letter to the London Times, that this organism is of the fungus tribe, and is taken, by the act of swallowing, into the intestinal canal, and there becomes "infinitely multiplied by the self-propagation which is characteristic of living beings." The pressure and propagation of these organisms, and the action they exert, are the cause of the peculiar flux which is characteristic of malignant cholera. These organisms are disseminated in the air, in the shape of impalpable particles, in contact with articles of food, and principally in the drinking water of infected places. The evidence on which these conclusions are founded, has been placed in the hands of the President of the College of Physicians, and will shortly be made known to the world for the benefit of mankind.

There have been so much said about this and that discovery, relative to the cause of cholera, that we have become quite skeptical about reported *new discoveries.*

Linseed Oil.

This oil is obtained in its greatest purity by cold pressure, but by a steam heat of about 200° Fahr., a very good oil may be extracted. The usual method is to torrefy the seeds in order to destroy the mucilage, to bruise, and then submit them to pressure. The oil is of a greenish yellow color, and has an odor peculiar to itself. It is siccative especially when boiled with litharge, becoming then reddish and clear after repose. It dissolves in five parts of boiling and forty of cold alcohol, and in 1.6 parts of ether. When kept for some time in a partially open cask, and in a cool place, it deposits a portion of its cold constituent along with a brown powder.

Tam-Tam.

It is remarkable that copper possesses properties, in respect to its hardening and tempering, which are the opposite of those of cast iron and steel : when cooled slowly, it becomes hard and brittle ; but, when cooled rapidly, soft and malleable. In a yet more remarkable degree is this anamalous property possessed by an alloy, composed of four parts of copper and one of tin, called tam-tam, used in the construction of gongs and other musical instruments.

LITERARY NOTICES.

We have received from V. B. Palmer, Esq., a copy of his Business Men's Almanac for 1850. It conntains many excellent articles upon all the most important branches of trade, which, together with its astronomical calculations, forms a very useful compilation not only for the counting-room, but for general use. Single copies 12 1-2 cents. Address V. B. Palmer, New York.

SARTAIN'S UNION MAGAZINE, for November, has been sent us by Messrs. Dewitt & Davenport, Tribune Buildings. The contents both in quality and quantity cannot be surpassed by any other periodical of the kind. The embellishments are superb, and reflect credit upon the artists. The contributions are from the pen of the very best authors ;—among them we notice "Leaves from the bank of the Rhine," by Fredrika Bremer, whose arrival in this country has just been announced.

HOLDEN'S DOLLAR MAGAZINE, under the management of Mr. W. H. Deitz, loses none of that attractiveness which has characterized it while controlled by its former proprietor. The number before us for November contains many excellent articles, besides a biography and likeness of the gallant Hungarian General, Arthur Gorgey . A new Volume will be commenced the 1st of January, with many important improvements. For particulars see advertisement in another column.

GRAHAM'S MAGAZINE, for November, has been sent us by W. H. Graham, Brick Church building, this city. The embellishments are beautiful, consisting of "Happy as a King," "Head Quarters of Gen. Knox," —a very splendid engraving ; "Paris Fashions, " and "The Balize." This number is excellent throughout We notice that a new Volume commences January 1st.

RANLETT'S ARCHITECT.—No. 9, Vol. 2, of this superb monthly periodical, contains plates of three designs, with perspective and sectional views, and full specifications. Every stick, stone, stair, and part of the building, is specified, and the average price laid down, and the whole footed up. No person who is interested in architecture, in any manner, can well be without this excellent publication.

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A PRESENT!

To any person who will send us Three Subscribers, we will present a copy of the PATENT LAWS OF THE UNITED STATES, together with all the information relative to PATENT OFFICE BUSINESS, including full directions for taking out Patents, method of making the Specifications, Claims, Drawings, Models, buying, selling, and transferring Patent Rights. &c.

N. B.—Subscribers will bear in mind that we employ no Agents to travel on our account ; a list of our local agents will be found in another column—all of whom are duly authorized to act as such, and none other.

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